**PIONEER**
*The Art of Entertainment*

# Service Manual

ORDER NO.
ARP2355

## PROJECTION MONITOR RECEIVER
# SD-P5057-Q
## KUX1C

- **Refer to the service manual ARP2273 for SD-P4053-K /KUX1C.**
- This manual is applicable to SD-P5057-Q/KUX1C type.

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# 1. CONTRAST OF MISCELLANEOUS PARTS

*NOTES:*

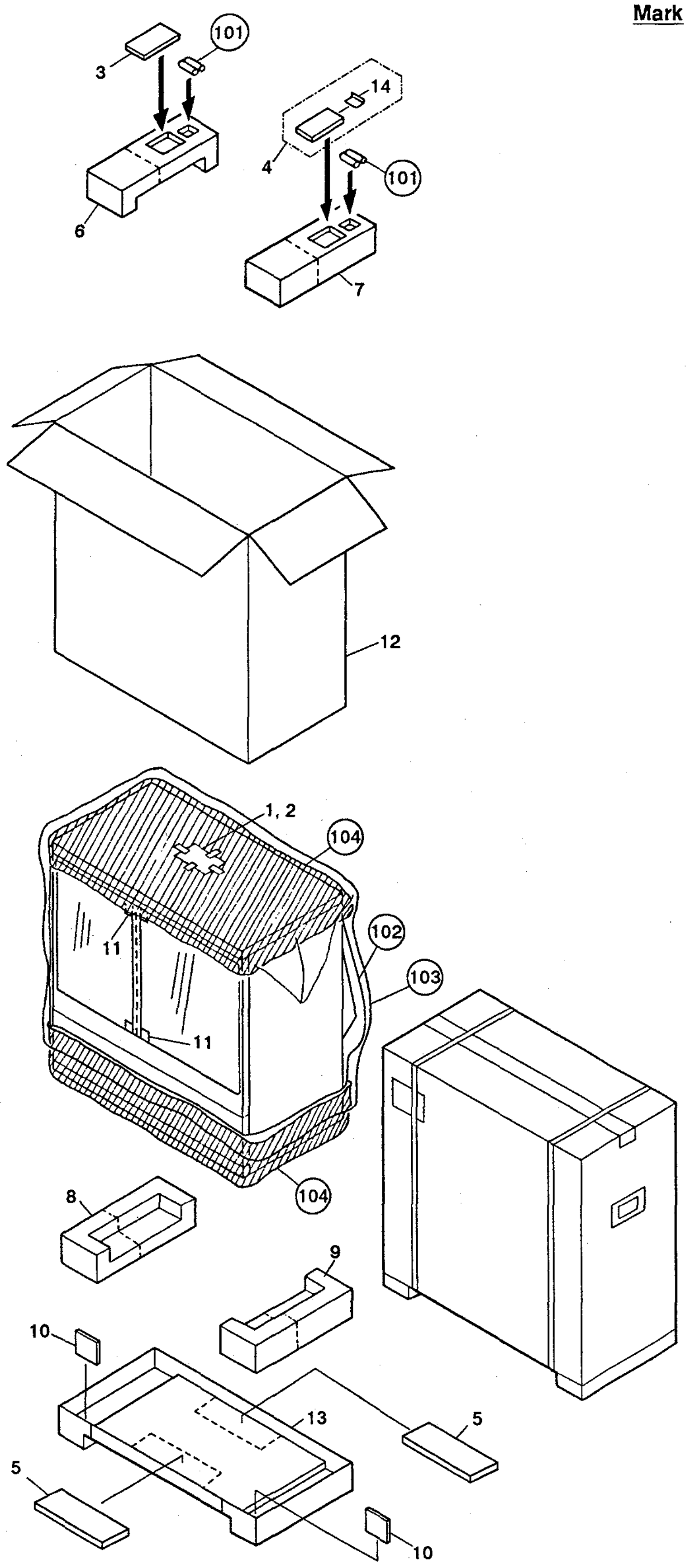
- *Part without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by " ◉ " are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *Parts marked by ☆ are important parts which relate with X- ray radiation. If any of these parts need to be replaced, always replace with specified parts.*

SD-P5057-Q/KUX1C type and SD-P4053-K/KUX1C type have the same construction except for the following:

| Mark | Symbol & Description | Part No. | | Remarks |
|---|---|---|---|---|
| | | **SD-P4053-K /KUX1C type** | **SD-P5057-Q /KUX1C type** | |
| | Plate B | AAK1705 | • • • • • | |
| | Plate C | AAK1706 | • • • • • | |
| | Plate A | AAK2145 | • • • • • | |
| | Plate D | AAK2146 | • • • • • | |
| | Badge | AAM1033 | AAM1036 | |
| | Door | AAN1122 | • • • • • | |
| | Door assembly | • • • • • | AAN1269 | |
| | Mirror protector B | • • • • • | AAP1122 | |
| | Screen frame assembly | • • • • • | AAP1175 | |
| | Side cover assembly | AAP1183 | • • • • • | |
| | Screw | • • • • • | ABA1005 | |
| | Screw | • • • • • | ABA1067 | |
| | Screw | • • • • • | ABA1080 | |
| | Screw | • • • • • | ABA1089 | |
| | Screw | • • • • • | ABA1107 | |
| | Screw | ABA1124 | • • • • • | |
| | Screw | • • • • • | ABA1126 | |
| | Screw | • • • • • | ABA1144 | |
| | Screw | • • • • • | ABA1145 | |
| | Rubber cushion | • • • • • | AEC1125 | |
| | Cushion | AEC1210 | • • • • • | |
| | Mirror case cushion | AEC1349 | • • • • • | |
| | Cushion (For under carton) | • • • • • | AHA1194 | For packing |
| | Upper pad L | AHA1262 | AHA1342 | For packing |
| | Upper pad R | AHA1263 | AHA1343 | For packing |
| | Under pad L | AHA1264 | AHA1344 | For packing |
| | Under pad R | AHA1265 | AHA1345 | For packing |
| | Cushion pad | • • • • • | AHA1449 | For packing |

| Mark | Symbol & Description | Part No. |  | Remarks |
|---|---|---|---|---|
|  |  | SD-P4053-K /KUX1C type | SD-P5057-Q /KUX1C type |  |
|  | Corrugated paper spacer | • • • • • | AHB1071 | For packing |
|  | Under carton | AHD1686 | AHD2126 | For packing |
|  | Upper carton | AHD2032 | AHD2125 | For packing |
|  | Front panel | AMB1475 | • • • • • |  |
|  | Front panel assembly | • • • • • | AMB1846 |  |
|  | Side panel L | AMB1476 | • • • • • |  |
|  | Side panel R | AMB1477 | • • • • • |  |
|  | Side panel assembly | • • • • • | AMB1545 |  |
|  | Glille (K3) | AMB1803 | • • • • • |  |
|  | Glille R50 | • • • • • | AMR2281 |  |
|  | Front cabinet assembly (K) | AMB1804 | • • • • • |  |
|  | Mirror case | AME1037 | AME1019 |  |
|  | Rear cover | AME1036 | • • • • • |  |
|  | Mirror | AMR1523 | AMR2173 |  |
|  | Caster | AMR2127 | AMR2329 |  |
|  | Fresnel lens | AMR2156 | • • • • • |  |
|  | Fresnel lens (50) | • • • • • | AMR2307 |  |
|  | Lenticular sheet | AMR2159 | • • • • • |  |
|  | Lenticular sheet (50) | • • • • • | AMR2308 |  |
| ☆ | Lens assembly 40 (R) | AMR2160 | • • • • • |  |
| ☆ | Lens assembly 40 (G) | AMR2161 | • • • • • |  |
| ☆ | Lens assembly 40 (B) | AMR2162 | • • • • • |  |
| ☆ | Lens assembly 50 (R) | • • • • • | AMR2163 |  |
| ☆ | Lens assembly 50 (G) | • • • • • | AMR2164 |  |
| ☆ | Lens assembly 50 (B) | • • • • • | AMR2165 |  |
|  | Operating instructions (English) | ARB1309 | ARB1331 |  |
| ☆⚠ | CRT assembly (G) | AWY1127 | AWY1130 |  |
| ☆⚠ | CRT assembly (R) | AWY1128 | AWY1133 |  |
| ☆⚠ | CRT assembly (B) | AWY1129 | AWY1134 |  |
|  | Remote control unit (CU-SD051) | • • • • • | AXD1203 |  |
|  | Battery cover | • • • • • | AZA1334 | For remote control unit |

## 2. PACKING

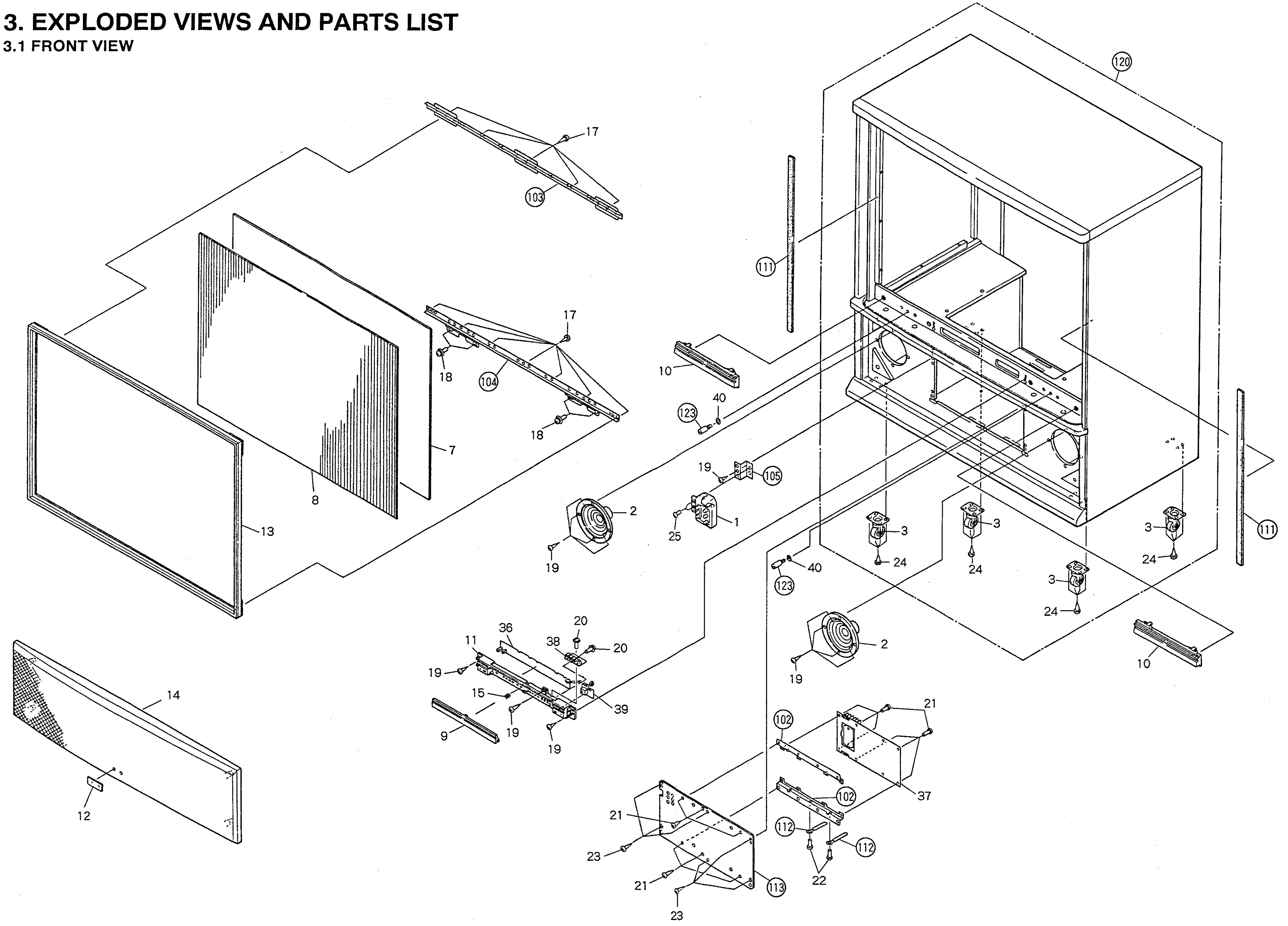


### Parts List

| Mark | No. | Description | Part No. |
|---|---|---|---|
|  | 1 | Operating instructions (English) | ARB1331 |
|  | 2 | ATTENTION card | ARM1054 |
|  | 3 | .Remote control unit (CU-SD044) | AXD1199 |
|  | 4 | Remote control unit (CU-SD051) | AXD1203 |
|  | 5 | Cushion (For under carton) | AHA1194 |
|  | 6 | Upper pad L | AHA1342 |
|  | 7 | Upper pad R | AHA1343 |
|  | 8 | Under pad L | AHA1344 |
|  | 9 | Under pad R | AHA1345 |
|  | 10 | Cushion pad | AHA1449 |
|  | 11 | Corrugated paper spacer | AHB1071 |
|  | 12 | Upper carton | AHD2125 |
|  | 13 | Under carton | AHD2126 |
|  | 14 | Battery cover | AZA1334 |
|  | 101 | Alkaline dry cell battery (LR6, AA) | AEX1007 |
|  | 102 | Packing sheet | AHG1166 |
|  | 103 | Packing bag | AHG1051 |
|  | 104 | Packing sheet | AHG1156 |

# 3. EXPLODED VIEWS AND PARTS LIST

## 3.1 FRONT VIEW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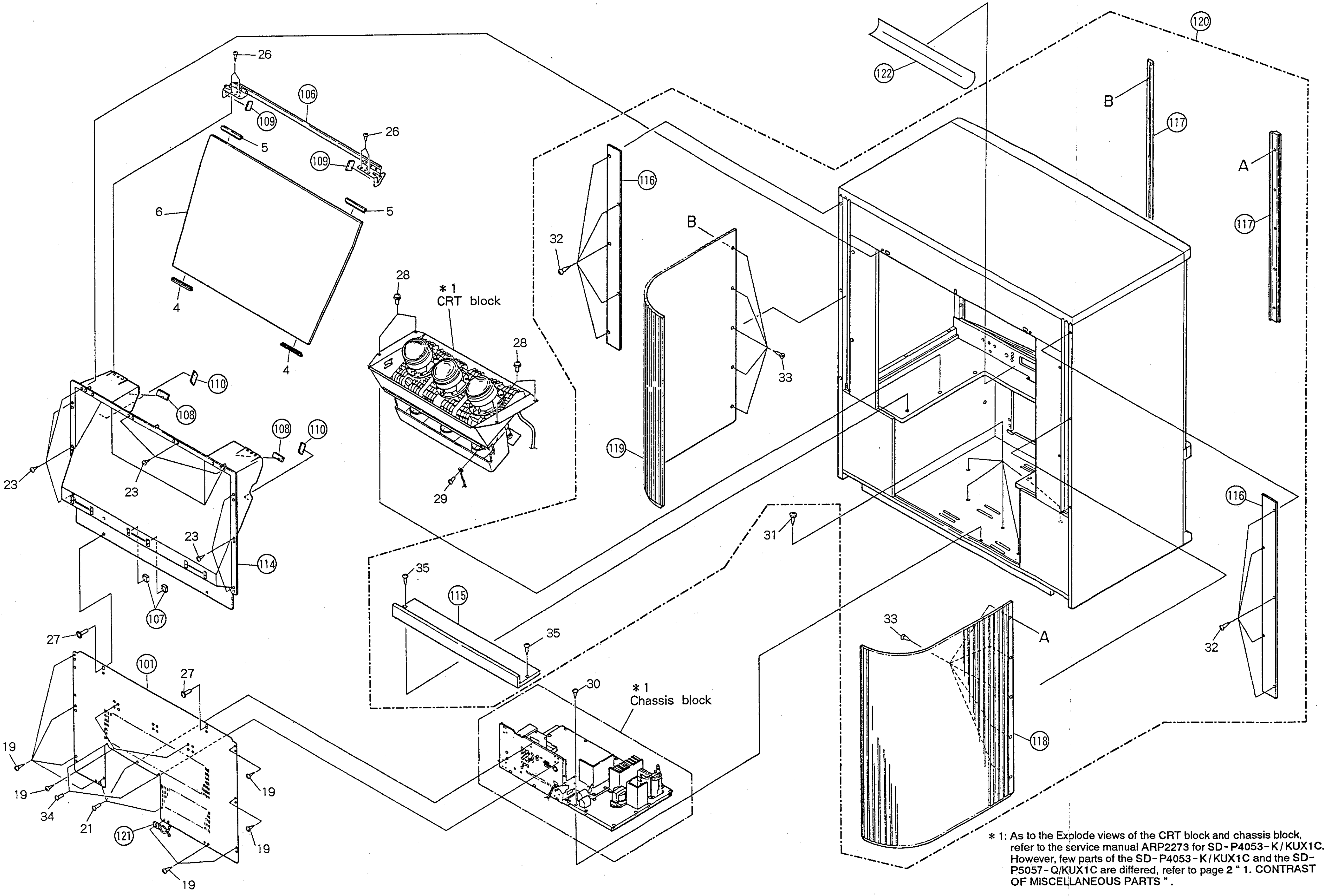
## 3.2 REAR VIEW


26
106
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109
6
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4
4
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∗1
CRT block
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110
23
23
23
114
107
27
101
27
19
19
34
21
121
19
19
19
32
116
B
33
119
122
120
B
117
A
117
35
115
35
31
30
∗1
Chassis block
33
A
118
116
32

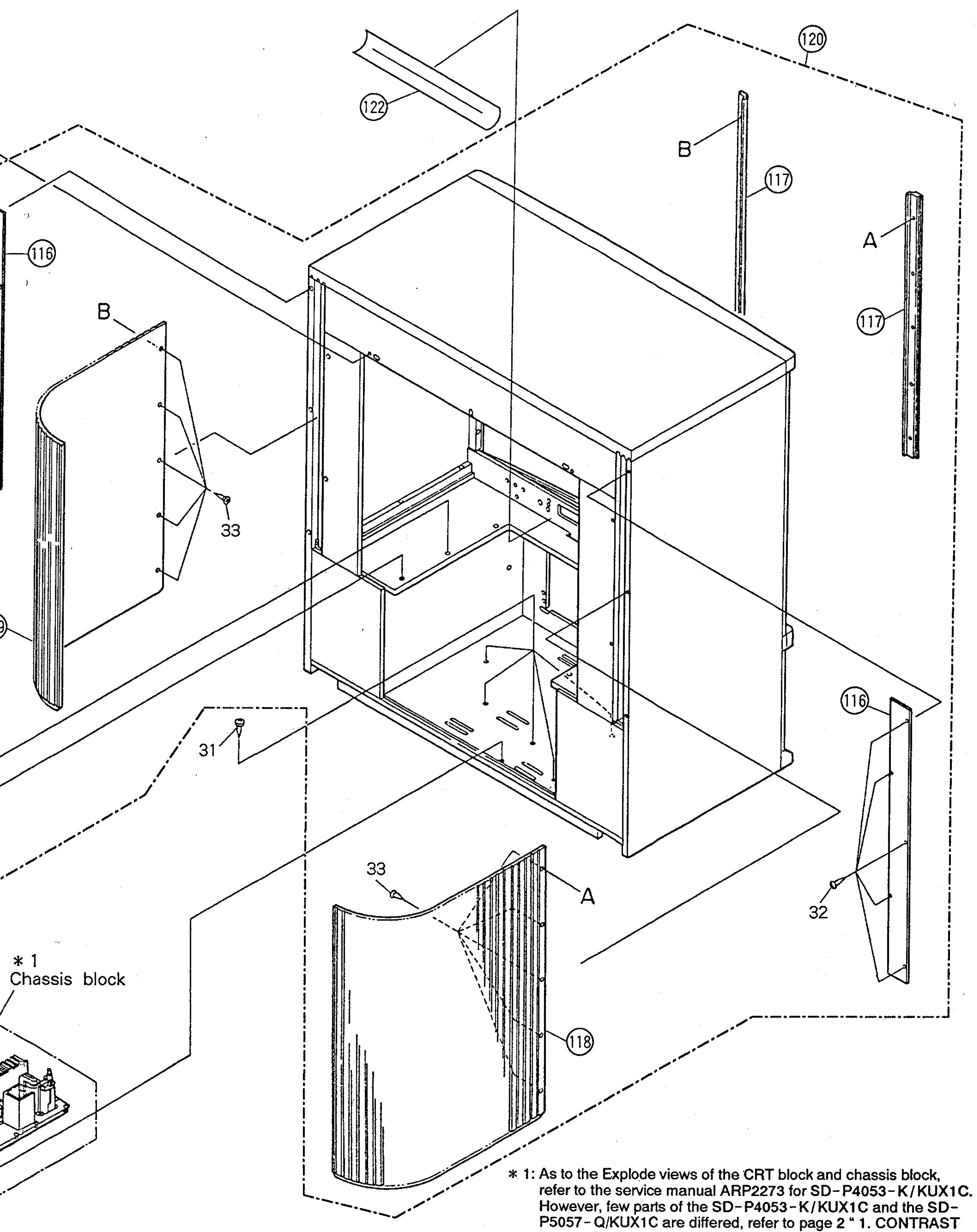
∗ 1: As to the Explode views of the CRT block and chassis block, refer to the service manual ARP2273 for SD-P4053-K/KUX1C. However, few parts of the SD-P4053-K/KUX1C and the SD-P5057-Q/KUX1C are differed, refer to page 2 " 1. CONTRAST OF MISCELLANEOUS PARTS ".

### 3.3 P/

*NOTES:*
- *The Pc*
- *The ⚠*
  *sure tc*
- *Parts i*
- *Parts i*
  *specifi*

**Mark** **I**

⚠



* 1: As to the Explode views of the CRT block and chassis block, refer to the service manual ARP2273 for SD-P4053-K/KUX1C. However, few parts of the SD-P4053-K/KUX1C and the SD-P5057-Q/KUX1C are differed, refer to page 2 " 1. CONTRAST OF MISCELLANEOUS PARTS ".

## 3.3 PARTS LIST

*NOTES:*

- *The Part with an encircled number are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by " ◉ " are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *Parts marked by ☆ are important parts which relate with X- ray radiation. If any of these parts need to be replaced, always replace with specified parts.*

| Mark | No. | Description | Part No. |
|---|---|---|---|
| ⚠ | 1 | Focus variable resistor(VR1) | ACX1061 |
| | 2 | Speaker | APV1021 |
| | 3 | Caster | AMR2329 |
| | 4 | Mirror protector B | AAP1122 |
| | 5 | Rubber cushion | AEC1125 |
| | 6 | Mirror | AMR2173 |
| | 7 | Fresnel lens (50) | AMR2307 |
| | 8 | Lenticular sheet (50) | AMR2308 |
| | 9 | Door assembly | AAN1269 |
| | 10 | Side panel assembly | AMB1545 |
| | 11 | Front panel assembly | AMB1846 |
| | 12 | Badge | AAM1036 |
| | 13 | Screen frame assembly | AAP1175 |
| | 14 | Grille R50 | AMR2281 |
| | 15 | Catcher | AEC1012 |
| | 16 | • • • • • | |
| | 17 | Screw | BYC40P200FMC |
| | 18 | Screw | ABA1067 |
| | 19 | Screw | BYC35P120FZB |
| | 20 | Screw | APZ30P080FZK |
| | 21 | Screw | BBZ30P080FZK |
| | 22 | Screw | VCZ30P060FMC |
| | 23 | Screw | BYC35P160FZK |
| | 24 | Screw | ABA1126 |
| | 25 | Screw | BBZ30P120FZK |
| | 26 | Screw | ABA1069 |
| | 27 | Screw | ABA1005 |
| | 28 | Screw | ABA1122 |
| | 29 | Screw | VBT30P080FZK |
| | 30 | Screw | BYC40P160FMC |
| | 31 | Screw | ABA1121 |
| | 32 | Screw | BYC40P200FMC |
| | 33 | Screw | BYC35P160FZK |
| | 34 | Screw | ABA1089 |
| | 35 | Screw | ABA1080 |
| | 36 | FRONT CONTROL assembly | AWZ3540 |
| | 37 | CONVERGENCE assembly | AWZ3523 |
| | 38 | FRONT INPUT TERMINAL assembly | AWZ3547 |
| | 39 | IR RECEIVER assembly | AWZ3543 |
| | 40 | Washer | WA42F120K080 |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 101 | Rear cover | ANF1066 |
| | 102 | Convergence stay | AND1035 |
| | 103 | Holder assembly | ANG1144 |
| | 104 | Holder assembly | ANG1380 |
| | 105 | VR holder | ANG1404 |
| | 106 | Mirror holder assembly | ANG1458 |
| | 107 | Cushion sheet A | AEC1051 |
| | 108 | Cushion sheet B | AEC1111 |
| | 109 | Mirror holder cushion | AEC1242 |
| | 110 | Mirror cushion 50 | AEC1243 |
| | 111 | Cushion | AEC1259 |
| | 112 | Binder | AEP-215 |
| | 113 | Blind plate | AMM1472 |
| | 114 | Mirror case | AME1019 |
| | 115 | Shield plate rear | AMM1539 |
| | 116 | Blind plate rear | AMM1540 |
| | 117 | Handle | AMM1541 |
| | 118 | Dumper door left | AMM1542 |
| | 119 | Dumper door right | AMM1543 |
| | 120 | Cabinet | • • • • • |
| | 121 | Cabinet wiring stopper | AEC1263 |
| | 122 | Sheet | AED1114 |
| | 123 | Guide pin | ANL1026 |

# 4. ADJUSTMENT

- A spacer is requierd in procedure "2. Focus adjustment" to align the positions of the screen and the dummy screen with each other.

| Step No. | Adjustment item | Input signal | Adjustment point | Adjustment procedure |
|---|---|---|---|---|
| 2 | Focus adjustment | Cross hatch | Replaced color focus VR (VR1) and lens assembly connected to replaced CRT assembly. | Adjust the focus of the replaced CRT assembly to optimum condition. ( Shifting the convergence position may provide easier observation. Be sure to return it to the original position after the adjustment is completed.) |

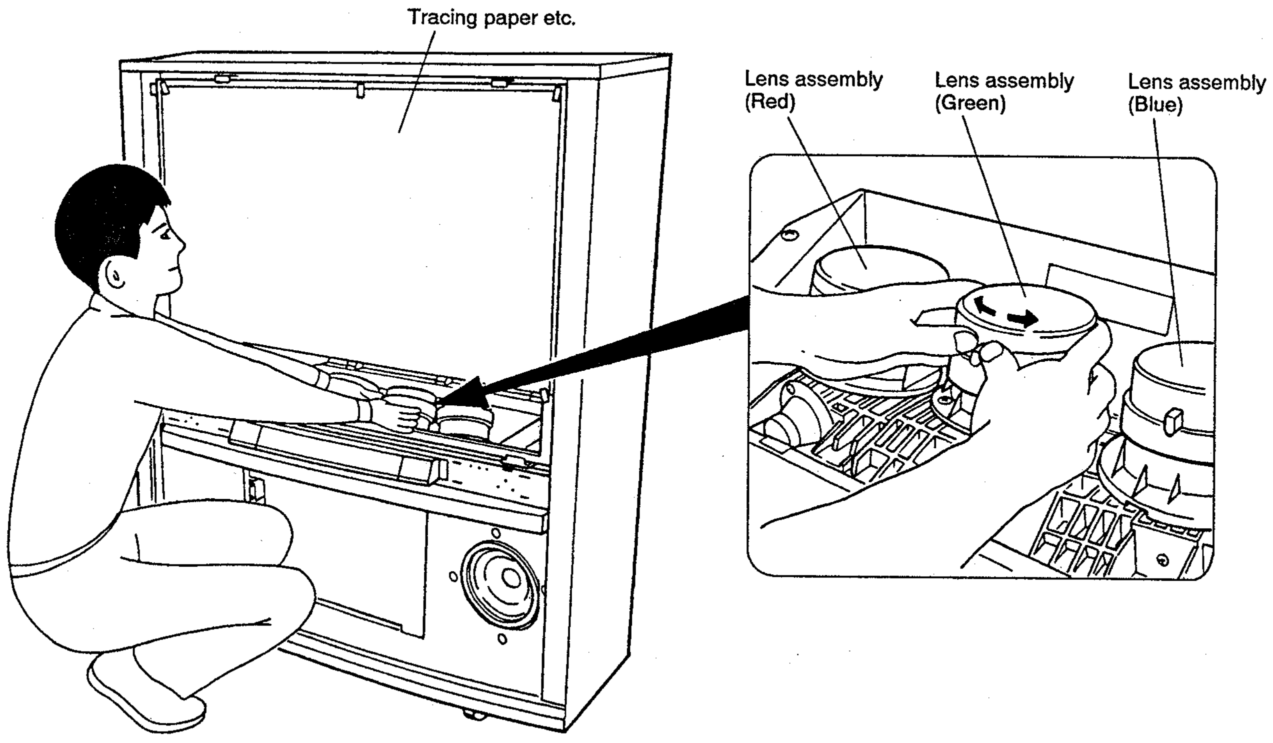
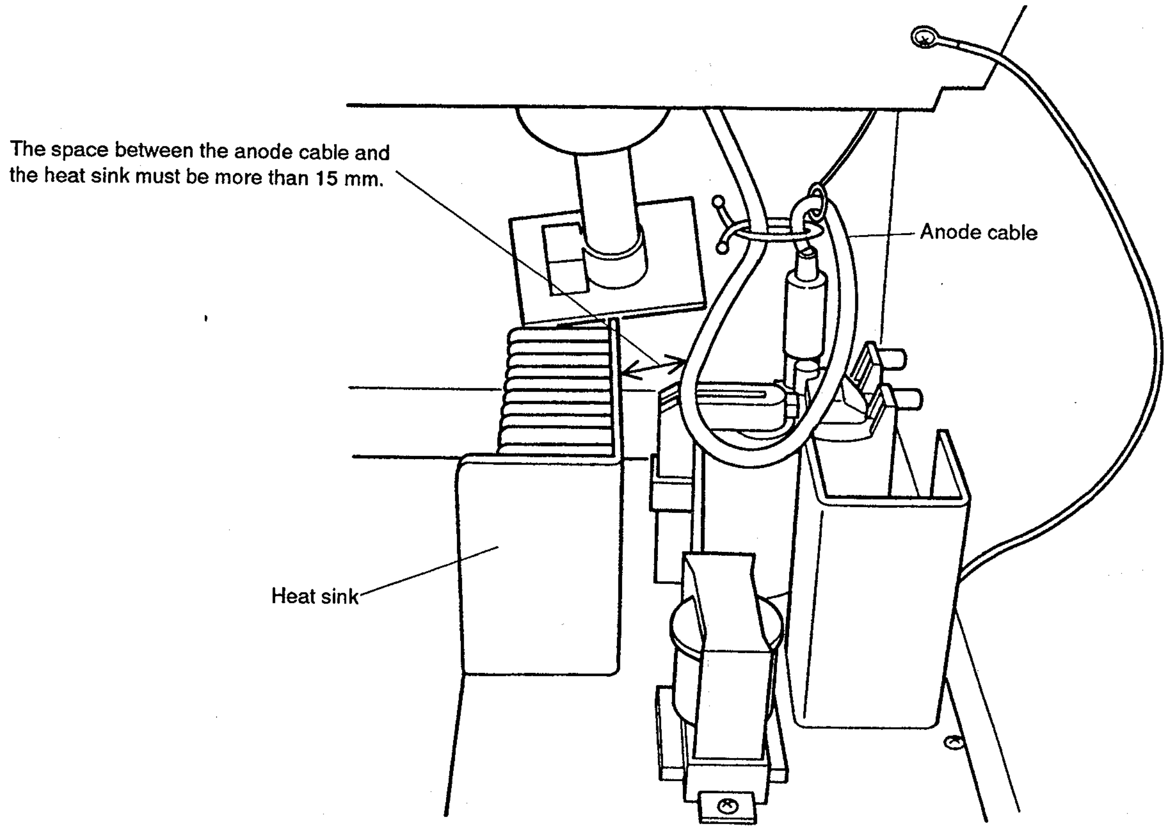

Tracing paper etc.
Lens assembly (Red)
Lens assembly (Green)
Lens assembly (Blue)

Fig. 4-1 Adjustment point

# 5. WIRING DIAGRAM

## ● Anode cable


The space between the anode cable and the heat sink must be more than 15 mm.
Anode cable
Heat sink

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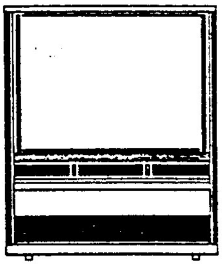
# Service Manual



ORDER NO.
ARP2273

## PROJECTION MONITOR RECEIVER

# SD-P4053-K

SD-P4053-K, SD-P4051-K AND SD-P4005 HAVE THE FOLLOWING :

| Type | Model | | | Power requirement | Remarks |
|---|---|---|---|---|---|
| | SD-P4053-K | SD-P4051-K | SD-P4005 | | |
| KUX1C | ○ | ○ | — | AC 120V only | |
| S | — | — | ○ | AC 110V, 120V, 220V, 240V (switchable) | |

- This manual is applicable to the SD-P4053-K/KUX1C type.
- As to the other types, refer to applicable service manuals.
- This manual is combined with operating instructions (from page 135).

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This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING
Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).
When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

## 1. SAFETY PRECAUTIONS

NOTICE:Comply with all cautions and safety related notes located on or inside the cabinet and on the chassis or picture tube.
The following precautions should be observed:

1. Do not install, remove, or handle the picture tube in any manner unless shatterproof goggles are worn. People not so equipped should be kept away while picture tubes are handled.
   Keep picture tube away from the body while handling.
2. When service is required, even though the SD-P4053-K an isolation transformer should be inserted between power line and the set in safety before any service is performed.
3. When replacing a chassis in the set, all the protective devices must be put back in place, such as barriers, nonmetallic knobs, adjustment and compartment covershields, isolation resistor-capacitor, etc.
4. When service is required, observe the original lead dress.
   Extra precaution should be taken to assure correct lead dress in the high voltage circuitry area.
5. Always use the manufacturer's replacement components.
   Especially critical components as indicated on the circuit diagram should not be replaced by other manufacture's.
   Furthermore where a short circuit has occurred, replace those components that indicate evidence of overheating.
6. Before returning a serviced set to the customer, the service technician must thoroughly test the unit to be certain that it is completely safe to operate without danger of electrical shock, and be sure that no protective device built into the set by the manufacturer has become defective, or inadvertently defeated during servicing.

Therefore, the following checks should be performed for the continued protection of the customer and service technician.

### Leakage Current Cold Check

With the AC plug removed from the 120V AC 60Hz source, place a jumper across the two plug prongs. Turn the AC power switch on. Using an insulation tester(DC 500V), connect one lead to the jumpered AC plug and touch the other lead to each exposed metal part(input/output terminals, screwheads, metal overlays, control shafts, etc.), particularly any exposed metal part having a return path to the chassis. Exposed metal parts having a return path to the chassis should have a minimum resistor reading of 0.3MΩ and a maximum resistor reading of 5MΩ . Any resistor value below or above this range indicates an abnormality which requires corrective action. Exposed metal parts not having a return path to the chassis will indicate an open circuit.

# 3. CHARGED SECTION, HIGH VOLTAGE GENERATING POINT AND X-RAY PROTECTION

## ■ Charged section

The circuit in which the commercial AC power is used as it is without passing through the power supply transformer. If the charged section is touched, there is a risk of electric shock. In addition, the measuring equipment can be damaged if it is connected to the GND of the charged section and the GND of the non-charged section while connecting the set directly to the commercial AC power supply. In this case, be sure to connect the set via an insulated transformer and supply the current.

## ■ Charged section (Power supply primary side)

1. The primary side of the POWER SUPPLY assembly AWV1203
2. AC power cord ADG1056

part is the charged section.

part is the high voltage generating points other than the charged section.

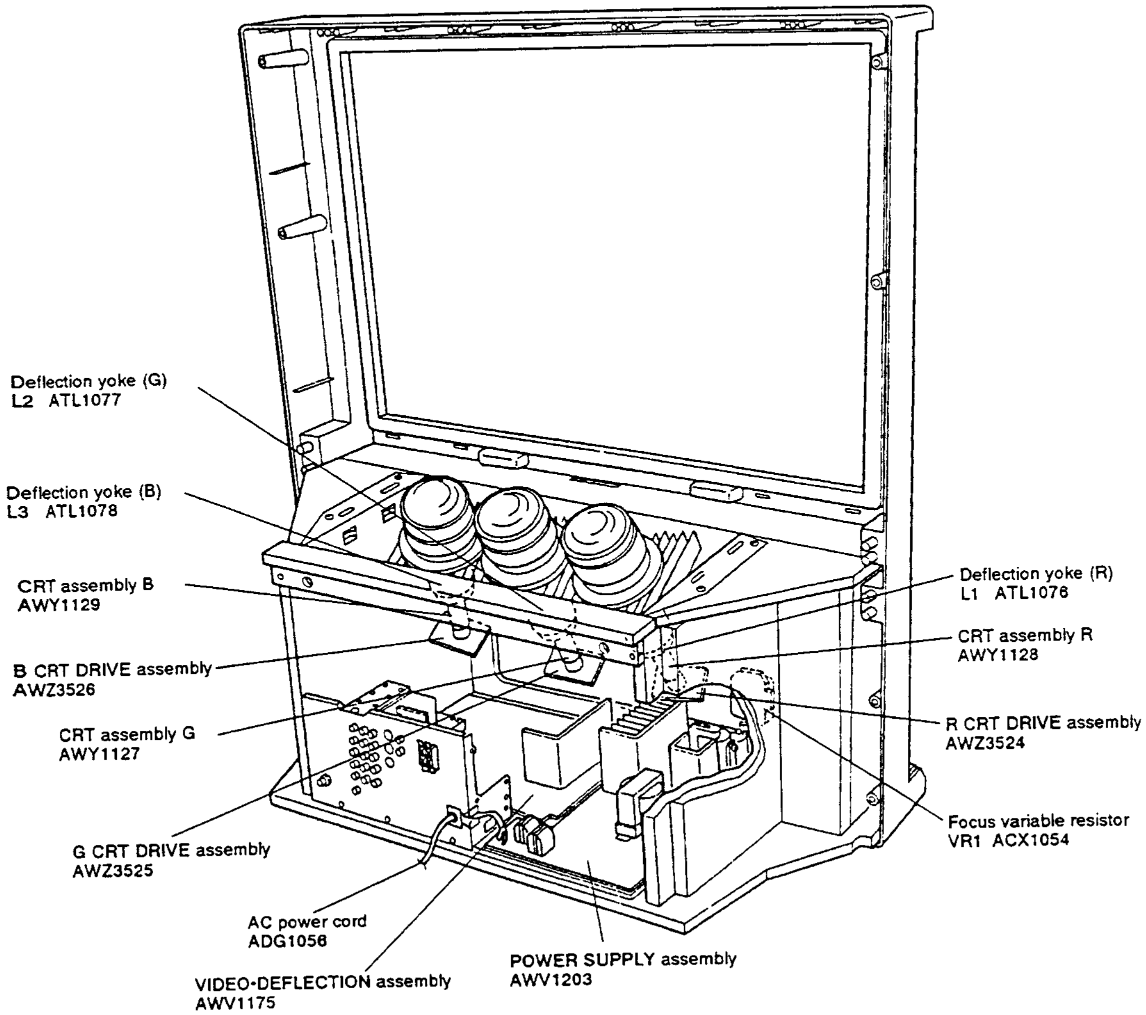
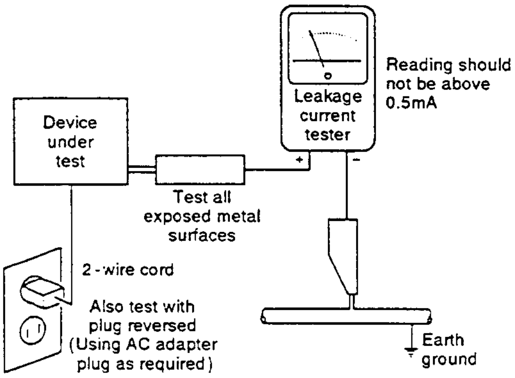

Deflection yoke (G)
L2 ATL1077
Deflection yoke (B)
L3 ATL1078
CRT assembly B
AWY1129
B CRT DRIVE assembly
AWZ3526
CRT assembly G
AWY1127
G CRT DRIVE assembly
AWZ3525
AC power cord
ADG1056
VIDEO•DEFLECTION assembly
AWV1175
POWER SUPPLY assembly
AWV1203
Deflection yoke (R)
L1 ATL1076
CRT assembly R
AWY1128
R CRT DRIVE assembly
AWZ3524
Focus variable resistor
VR1 ACX1054

Fig. 3-1 Charged section and high voltage generating point

### Leakage Current Hot Check

Plug the AC line cord directly into a 120V AC 60Hz outlet (do not use an isolation transformer for this check). Turn the AC power switch on. Using a "Leakage Current Tester (Simpson Model 229 equivalent)", measure for current from all exposed metal parts of the cabinet(input/output terminals, screwheads, metal overlays, control shaft, etc.), particularly any exposed metal part having a return path to the chassis, to a known earth ground(water pipe, conduit, etc.). Any current measured must not exceed 0.5mA.


Reading should not be above 0.5mA
Leakage current tester
Device under test
+
-
Test all exposed metal surfaces
2-wire cord
Also test with plug reversed (Using AC adapter plug as required)
Earth ground

AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE SET TO THE CUSTOMER.

### High Voltage

This set is provided with a X-ray protection for clearly indicating that voltage has increased in excess of a predetermined value. Comply with all notes described in this Service Manual regarding this hold down circuit when servicing, so that this X-ray protection may correctly be operated.

### Serviceman Warning

In the status of the black picture(video muting is being applied)when no signal is input, high voltage of this set during operation is less than 31.4kV. In case any component having some relation to the high voltage is replaced, confirm that the high voltage is lower than 31.4kV in the status of the black picture when no signal is input.

### X-radiation

TUBE:The primary source of X-radiation in this set is the picture tube.

For continued X-radiation protection, the replacement tube must be the same type as the original, PIONEER approved type.

The picture tube(CRT assembly R, G, B)used in this set holds complete guarantee against X-ray radiation when the X-ray is sealed(See on page 5). Accordingly, when the current in flowing to the picture tube(CRT assembly R, G, B), be sure to perform it by putting the tube into X-ray sealed applied state. Avoid absolutely to flow the current to the picture tube(CRT assembly R, G, B)itself. Moreover, when the voltage of the high voltage circuit becomes abnormally a little higher, the picture tube radiates X-rays. Accordingly, when servicing the high voltage circuit be sure to replace as an assembly with the POWER SUPPLY assembly(AWV1203)in the manner in which has been adjusted to perform normal operation.

## 2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in PIONEER set have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, X-radiation, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

### ■ High voltage generating point

The place where voltage of over 100V is generated.

1. Charged section
2. POWER SUPPLY assembly (including FBT)
   AWV1203 (31.0kV, 135V)
3. R CRT DRIVE assembly
   AWZ3524 (10.5kV)
4. G CRT DRIVE assembly
   AWZ3525 (10.5kV)
5. B CRT DRIVE assembly
   AWZ3526 (10.5kV)
6. CRT assembly R
   AWY1128 (31.0kV)
7. CRT assembly G
   AWY1127 (31.0kV)
8. CRT assembly B
   AWY1129 (31.0kV)
9. Focus variable resistor(VR1)
   ACX1054 (10.5kV)
10. Deflection yoke
    ATL1076(L1:R)
    ATL1077(L2:G) (Approx. 1100V at peak)
    ATL1078(L3:B)
11. VIDEO•DEFLECTION assembly
    (Horizontal deflection block)
    AWV1175 (Approx. 1100V at peak, 135V)

### ■ X-ray protection

- Regarding the parts which are relative to radiation of X-rays (There is the danger to radiate X-ray from the individual CRT assembly R, G, B), there are notifications of caution in the individual schematic diagrams. Be sure to read them for safety's sake.
- The component parts for X-ray protection are as follows :When the current flows to the CRT assembly R, G, B, be sure to perform it with these parts being attached. Protection from the X-ray radiation is maintained in the state in which these parts have been installed to the CRT assembly R, G, B. Accordingly, never supply current only to the CRT assembly R, G, B.
  Moreover, the anode voltage of the CRT assembly R, G, B should always be kept not higher than the predetermined value (in the minimum brightness and picture state when non signal input is higher than 31.4kV). Be sure to drive the CRT assembly R, G, B by using a completely functional POWER SUPPLY assembly(AWV1203) which has been adjusted completely in the combined state. (When the voltage abnormally becomes high, the X-ray protection circuit will operate.)

1. CRT assembly R, G, B(Do not dismantle CRT assemblies under any circumstances).
2. Lens assembly 40 (R),(G),(B)

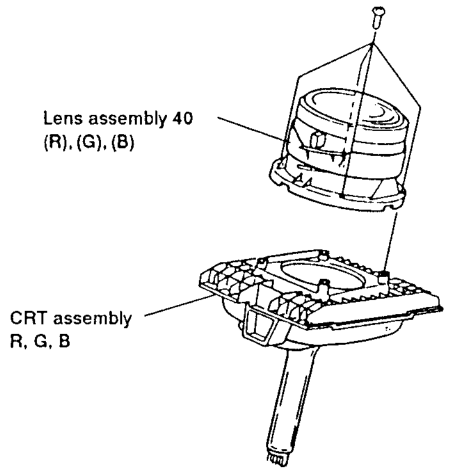


Fig. 3-2 Component parts for X-ray protection

# 4. HOW TO CLEAN

Note:
Cleaning liquid B4(GEM1004) for LD players is usable for projection TV display.

### Jigs

Use the following for cleaning optical components such as lens, mirror and screen.

| Name | Number |
|---|---|
| Cleaning cloth, MINIMAX | GED-009 |
| Cleaning liquid, B4 | GEM1004 |

Note: Wear gloves when holding optical components lest you should make fingerprints.

## 4.1 Method of Cleaning Lenses and Mirrors

1. Remove dust with an airbrush.
2. Apply some cleaning liquid to the cloth and wipe the dirt off with the cloth.
3. If the component is not so dirty, moisten it with breath and wipe it with the cloth.

Note: Wipe it softly lest you should scratch the lens.

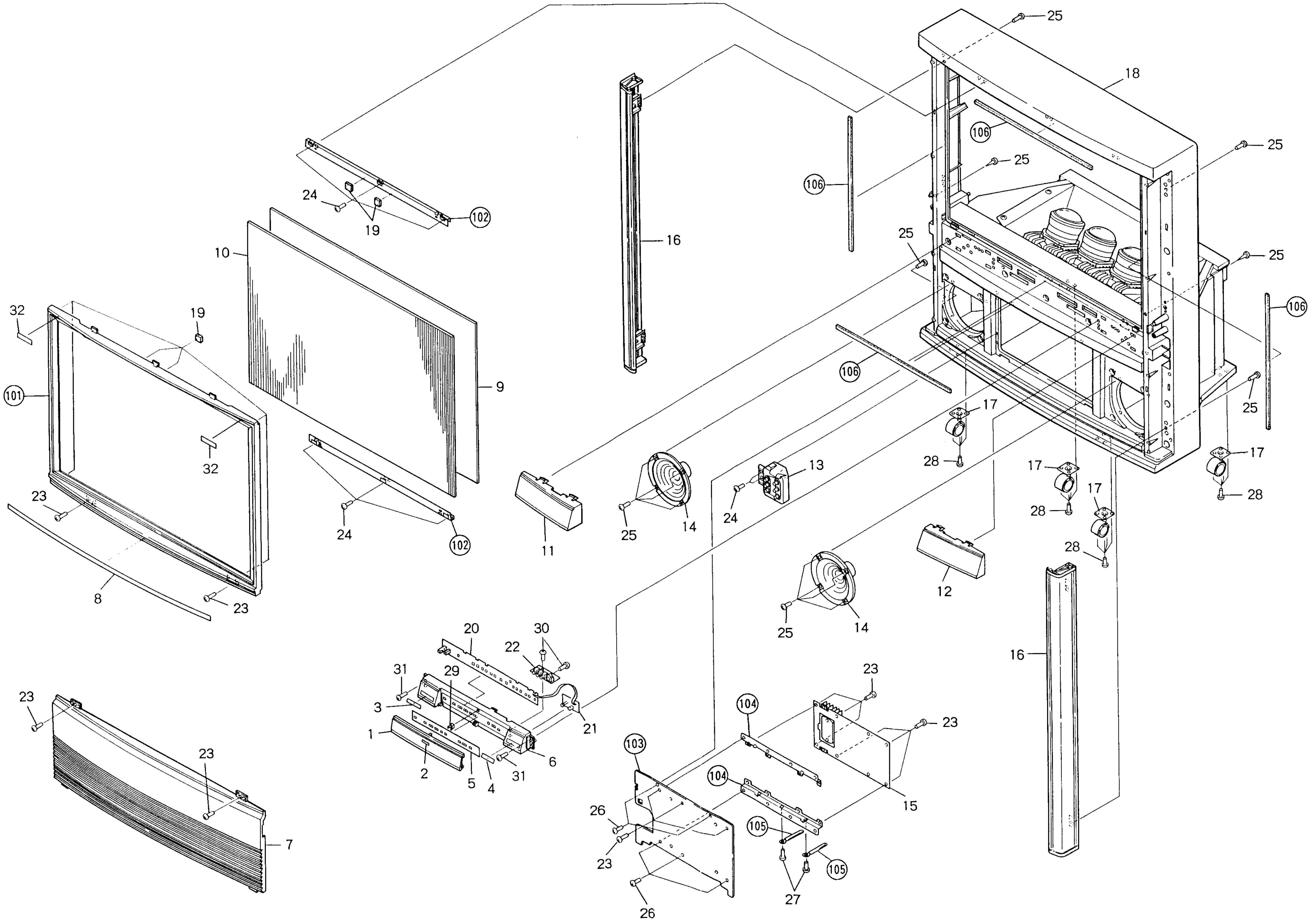
## 4.2 Screen Cleaning

1. Apply the cleaning liquid to the above cloth or similar soft cloth and wipe the dirt off with the cloth.
2. Apply de-electrifier to the rear-surface or fresnellens side of the screen, or dust will stick on it.

Note:
(1) Apply no alcoholic liquid such as thinner and benzine to the front surface lest the black printing on the rear surface should come off.
(2) Use Ascetete-cloth tape, GYH1001, for sticking Fresnel lens and lenticular sheet together.

# 5. EXPLODED VIEWS AND PARTS LIST

## 5.1 FRONT VIEW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*NOTES:*

- ● *Parts without part number cannot be supplied.*
- ● *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- ● *Parts marked by " ◉ " are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- ● *Parts marked by ☆ are important parts which relate with X- ray radiation. If any of these parts need to be replaced, always replace with specified parts.*

## Parts List

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | Door | AAN1122 |
| | 2 | Badge | AAM1033 |
| | 3 | Plate B | AAK1705 |
| | 4 | Plate C | AAK1706 |
| | 5 | Plate A | AAK2145 |
| | 6 | Front panel | AMB1475 |
| | 7 | Grille (K3) | AMB1803 |
| | 8 | Plate D | AAK2146 |
| | 9 | Fresnel | AMR2156 |
| | 10 | Lenticular sheet | AMR2159 |
| | 11 | Side panel L | AMB1476 |
| | 12 | Side panel R | AMB1477 |
| ⚠ | 13 | Focus variable resistor (VR1) | ACX1061 |
| | 14 | Speaker | APV1021 |
| | 15 | CONVERGENCE assembly | AWZ3523 |
| | 16 | Side cover assembly | AAP1183 |
| | 17 | Caster | AMR2127 |
| | 18 | Front cabinet assembly (K3) | AMB1804 |
| | 19 | Cushion | AEC1210 |
| | 20 | Front control assembly | AWZ3540 |
| | 21 | IR RECEIVER assembly | AWZ3543 |
| | 22 | FRONT INPUT TERMINAL assembly | AWZ3547 |
| | 23 | Screw | VPZ40P120FMC |
| | 24 | Screw | BPZ30P120FZK |
| | 25 | Screw | BYC35P120FZB |
| | 26 | Screw | BBZ30P080FZK |
| | 27 | Screw | VCZ30P060FMC |
| | 28 | Screw | BYC40P200FMC |
| | 29 | Catcher | AEC1012 |
| | 30 | Screw | APZ30P080FZK |
| | 31 | Screw | VPZ40P120FMC |
| | 32 | Cushion | AEC1366 |

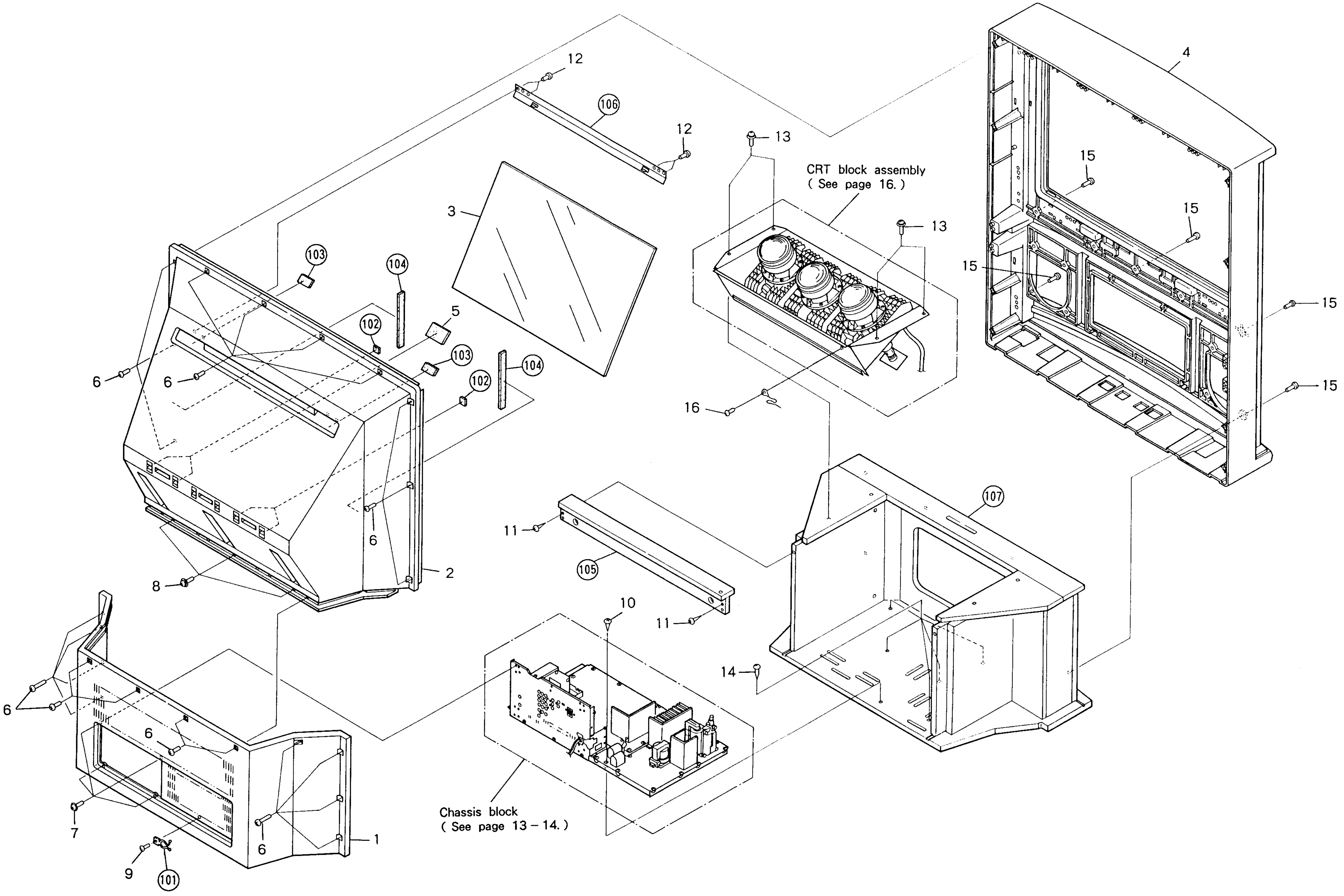
| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 101 | Screen frame (K) | |
| | 102 | Screen holder | |
| | 103 | Blind plate | |
| | 104 | Stay | |
| | 105 | Binder | |
| | 106 | S spacer | |

## 5.2 REAR VIEW

### Parts List

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | Rear cover | AME1036 |
| | 2 | Mirror case | AME1037 |
| | 3 | Mirror | AMR1523 |
| | 4 | Front cabinet assembly (K3) | AMB1804 |
| | 5 | Mirror case cushion | AEC1349 |
| | 6 | Screw | VPZ40P160FZK |
| | 7 | Screw | ABZ30P120FZK |
| | 8 | Screw | ABA1124 |
| | 9 | Screw | BBZ30P120FZK |
| | 10 | Screw | BYC40P160FMC |
| | 11 | Screw | BYC40P300FMC |
| | 12 | Screw | ABA1069 |
| | 13 | M5 screw | ABA1122 |
| | 14 | Screw | ABA1121 |
| | 15 | Screw | PMB50P250FZB |
| | 16 | Screw | VBT30P080FZK |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 101 | Cable clip | |
| | 102 | Cushion sheet A | |
| | 103 | Cushion sheet B | |
| | 104 | Mirror cushion | |
| | 105 | Shield plate | |
| | 106 | Mirror holder stay | |
| | 107 | CRT block | |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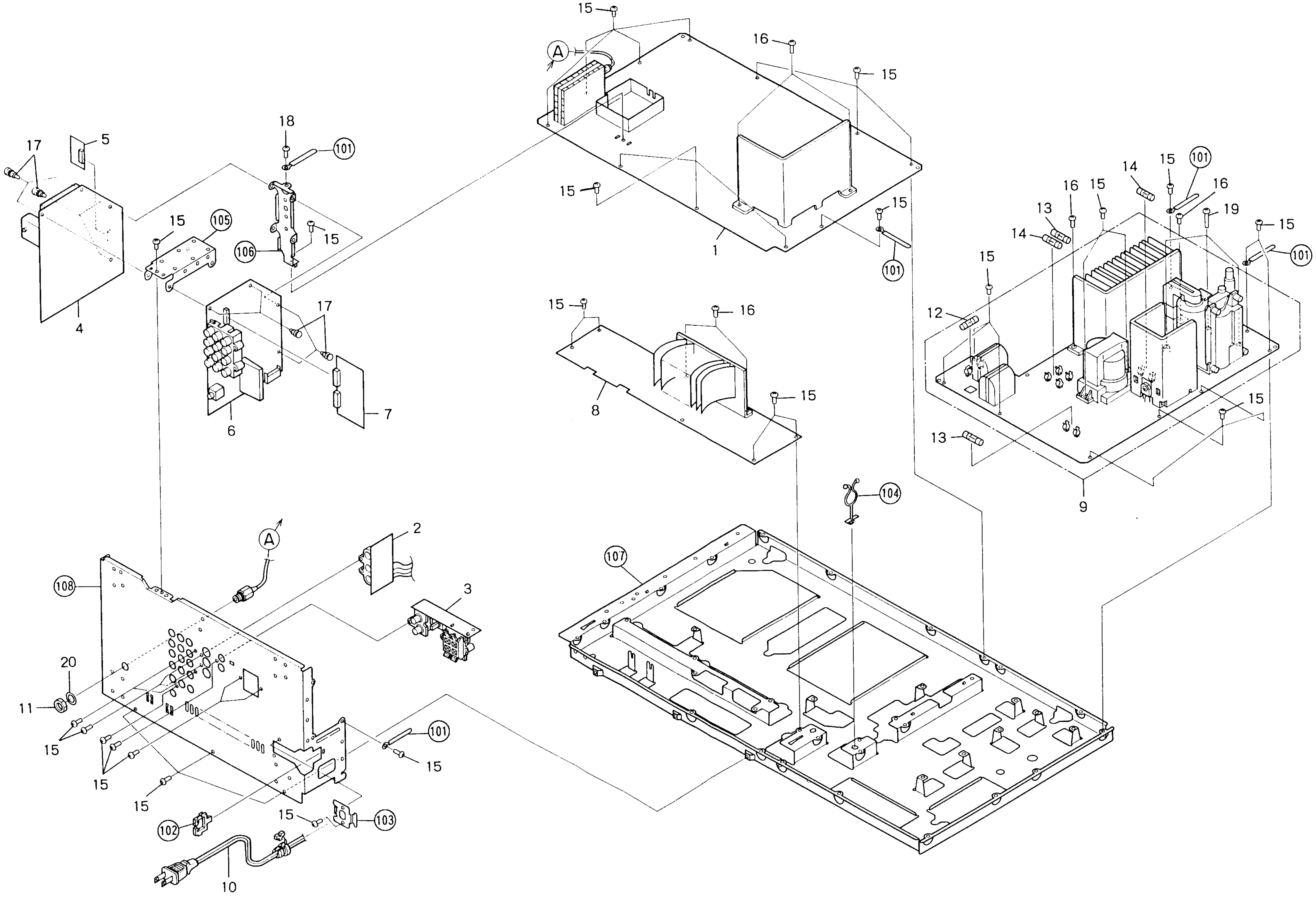
CRT block assembly
( See page 16. )

Chassis block
( See page 13 – 14. )

## 5.3 CHASSIS BLOCK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(A)
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(104)
(107)
2
(A)
3
(108)
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(101)
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15
(102)
15
(103)
10

## Parts List

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | VIDEO•DEFLECTION assembly | AWV1175 |
| | 2 | S-3P TERMINAL assembly | AWZ3532 |
| | 3 | SP TERMINAL assembly | AWZ3545 |
| | 4 | PINP assembly | AWZ3655 |
| | 5 | PINP SUB assembly | AWZ3656 |
| | 6 | AV I/O-3P•Y/C SEP assembly | AWZ3529 |
| | 7 | PINP SELECT assembly | AWZ3534 |
| | 8 | AUDIO•DSE assembly | AWZ3538 |
| ☆ | 9 | POWER SUPPLY assembly | AWV1203 |
| ⚠ | 10 | AC power cord | ADG1056 |
| | 11 | Nut | ABN-087 |
| ⚠ | 12 | Fuse (8A,FU401) | AEK1002 |
| ⚠ | 13 | Fuse (6.3A/125V,FU403,FU405) | AEK-309 |
| ⚠ | 14 | Fuse (4A/125V,FU404,FU406) | AEK1018 |
| | 15 | Screw | BBZ30P080FZK |
| | 16 | Screw | ABA1099 |
| | 17 | Plastic rivet | AEC-441 |
| | 18 | Screw | VCZ30P060FMC |
| | 19 | Screw | VBZ30P200FMC |
| | 20 | Washer | WAX0F160N100 |

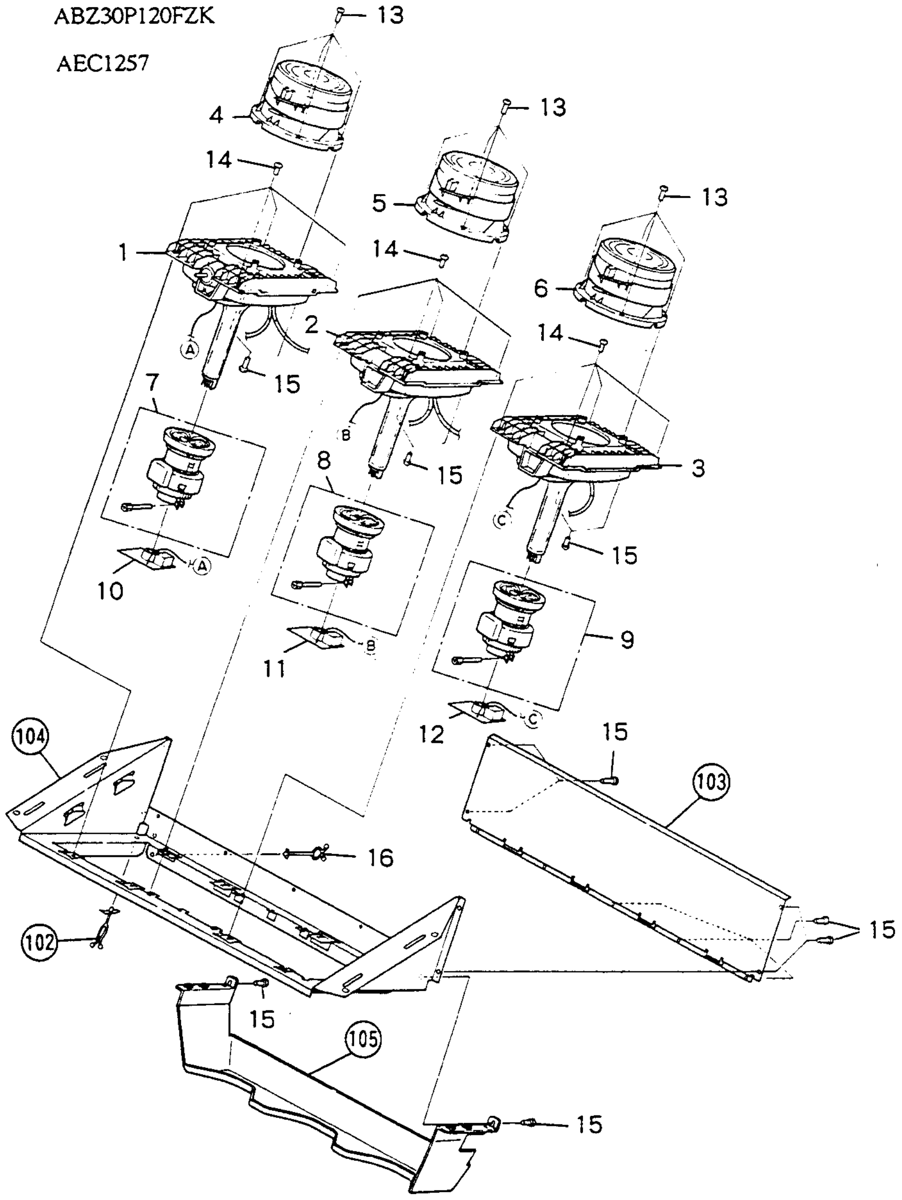
| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 101 | Binder | |
| | 102 | Cord holder | |
| | 103 | Cord plate | |
| | 104 | Cable clip | |
| | 105 | PCB frame | |
| | 106 | PCB stand | |
| | 107 | Chassis | |
| | 108 | Rear panel | |

## 5.4 CRT ASSEMBLY BLOCK

### Parts List

| Mark | No. | Description | Part No. |
|---|---|---|---|
| ⚠☆ | 1 | CRT assembly R | AWY1128 |
| ⚠☆ | 2 | CRT assembly G | AWY1127 |
| ⚠☆ | 3 | CRT assembly B | AWY1129 |
| ☆ | 4 | Lens assembly 40 (R) | AMR2160 |
| ☆ | 5 | Lens assembly 40 (G) | AMR2161 |
| ☆ | 6 | Lens assembly 40 (B) | AMR2162 |
| ⚠ | 7 | Deflection yoke (L1) | ATL1076 |
| ⚠ | 8 | Deflection yoke (L2) | ATL1077 |
| ⚠ | 9 | Deflection yoke (L3) | ATL1078 |
|  | 10 | R.CRT DRIVE assembly | AWZ3524 |
|  | 11 | G.CRT DRIVE assembly | AWZ3525 |
|  | 12 | B.CRT DRIVE assembly | AWZ3526 |
|  | 13 | Screw | AMZ40P080FZK |
|  | 14 | Screw | FBT40P120FZK |
|  | 15 | Screw | ABZ30P120FZK |
|  | 16 | Cord holder | AEC1257 |

| Mark | No. | Description | Part No. |
|---|---|---|---|
|  | 101 | • • • • • |  |
|  | 102 | Lead clamper |  |
|  | 103 | Cover L |  |
|  | 104 | CRT stand |  |
|  | 105 | Tray |  |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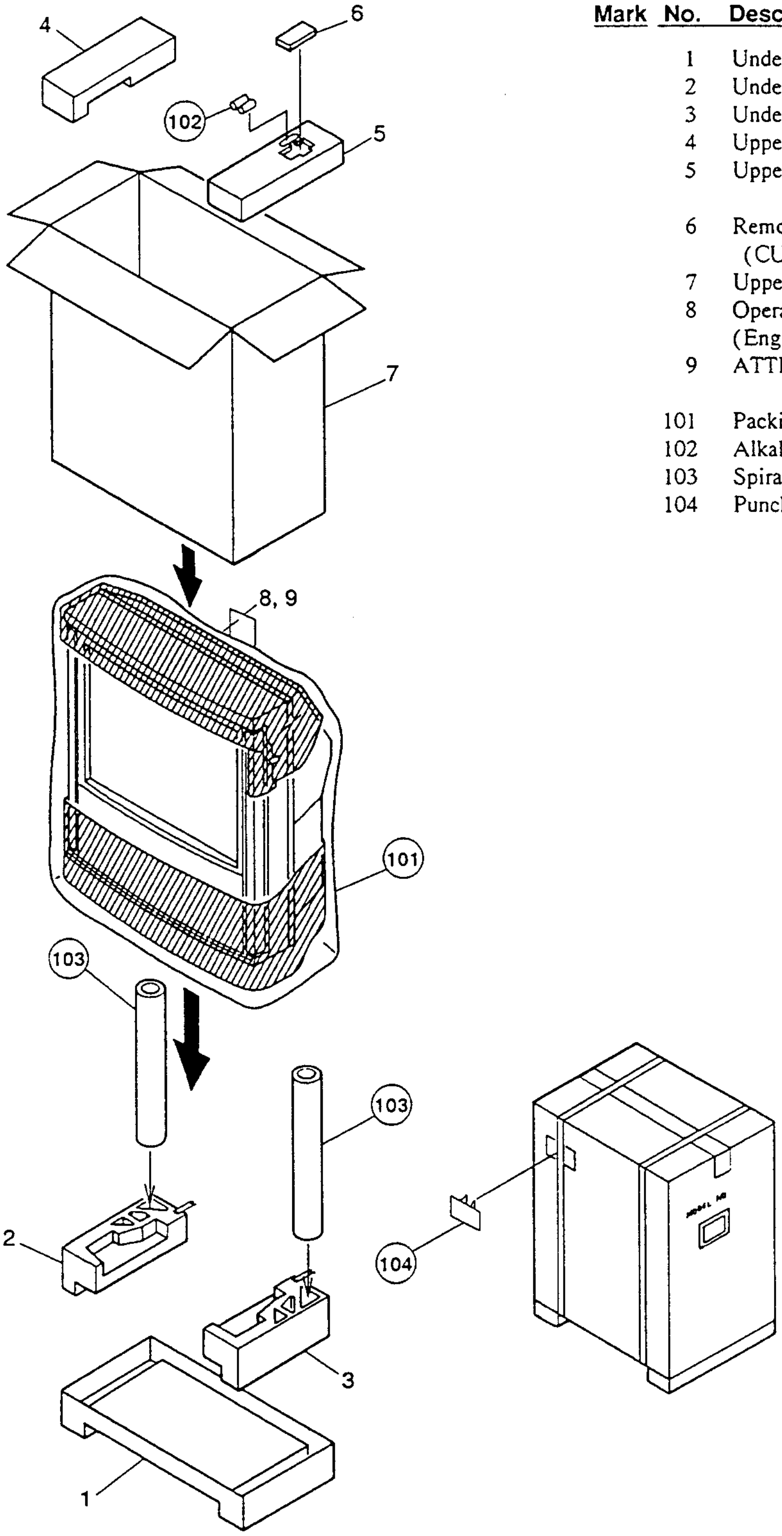
# 6. PACKING



## Parts List

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | Under carton | AHD1686 |
| | 2 | Under pad L | AHA1264 |
| | 3 | Under pad R | AHA1265 |
| | 4 | Upper pad L | AHA1262 |
| | 5 | Upper pad R | AHA1263 |
| | 6 | Remote control unit (CU-SD044) | AXD1199 |
| | 7 | Upper carton | AHD2032 |
| | 8 | Operating instructions (English) | ARB1309 |
| | 9 | ATTENTION card | AMR1054 |
| | 101 | Packing bag | |
| | 102 | Alkaline dry cell battery (LR6, AA) | |
| | 103 | Spiral tube | |
| | 104 | Punch card | |

# 7. SCHEMATIC AND P.C. BOARDS DIAGRAM

1. RESISTORS:
   Indicated in Ω , 1/4W, 1/6W and 1/8W, ± 5% tolerance unless otherwise noted k;k Ω , M;M Ω , (F); ± 1%, (G); ± 2%, (K); ± 10%, (M); ± 20% tolerance.

2. CAPACITORS:
   Indicated in capacity( μ F)/voltage(V)unless otherwise noted p;pF. Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT:
   $\boxed{\quad V}$ ; Signal voltage at 10W+10W, 8Ω output (1kHz)
   ☐ ; DC voltage(V)at no input signal without notice.
   Value in( )is color bar signal input state.
   ⇐ mA ;DC current at no input signal without notice.

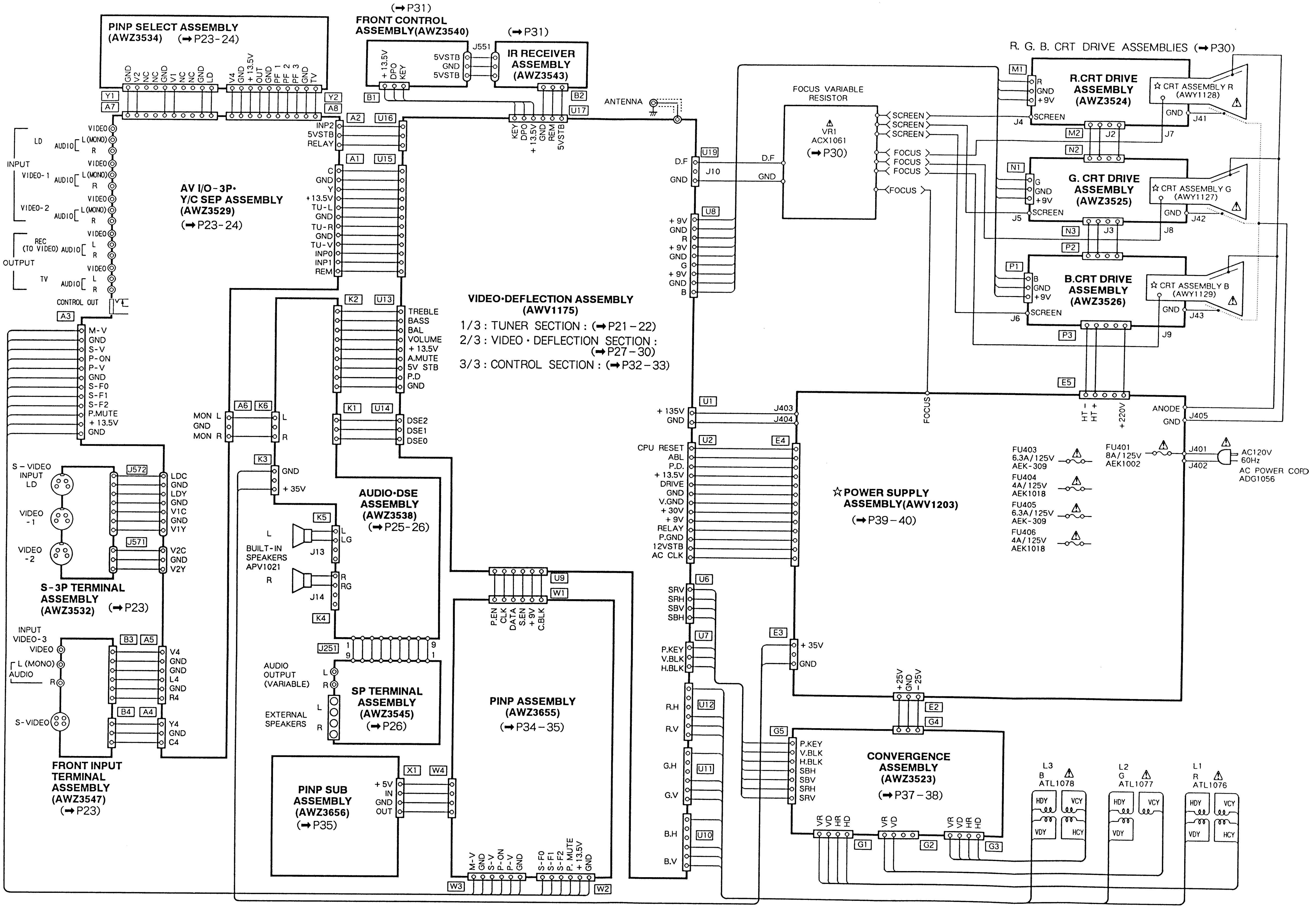
4. OTHERS:
   → ;Signal route.
   ⊘ ;Adjusting point.

- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- ※ marked capacitors and resistors have parts numbers.
- This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.
- Parts marked by ☆ are important parts which relate with X-ray radiation. If any of these parts need to be replaced, always replace with specified parts.
- Parts marked by × are important parts which relate with X-ray radiation. If a failure occurs in any of these parts, replace the printed circuit board assembly where the relevant part has already been adjusted as a working component. Do not replace the actual part itself.
  If any part marked by × is replaced, there is danger of being exposed to X-rays.
- Waveform ; Color bar input state.

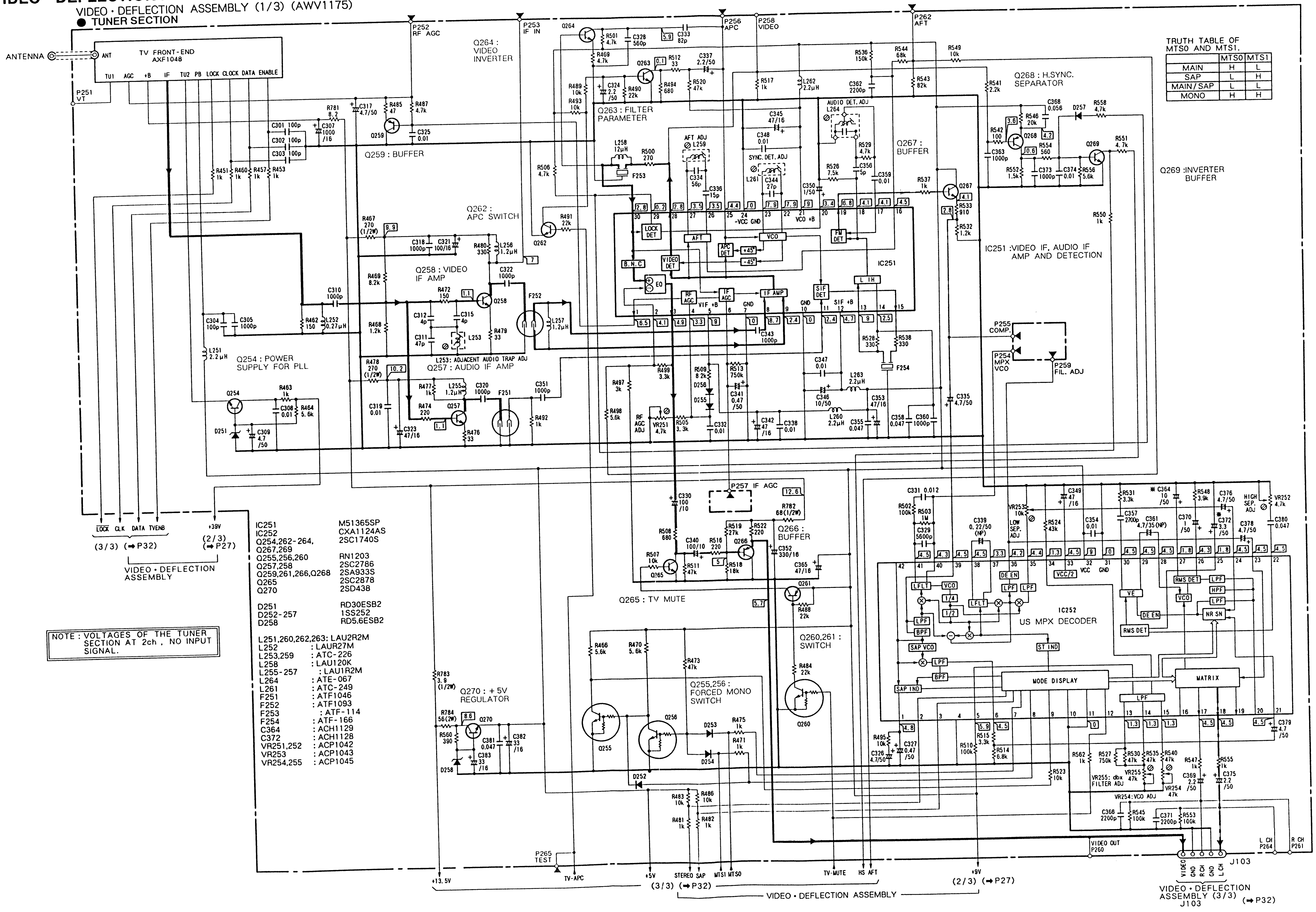
5. SIGNAL ROUTES
   CHARGED SECTION
   ——— VIDEO & Y SIGNAL ROUTE
   COLOR SIGNAL ROUTE
   AUDIO IF ROUTE
   – – – AUDIO L CH ROUTE
   - - - - H. DEFLECTION ROUTE
   V. DEFLECTION ROUTE
   R. SIGNAL ROUTE
   G. SIGNAL ROUTE
   B. SIGNAL ROUTE

6. SWITCHES:(The underlined indicates the switch position)
   SP TERMINAL ASSEMBLY
   S501:SPEAKER SELECTOR INT - EXT
   FRONT CONTROL ASSEMBLY
   S551:POWER
   S552:PRESET MENU
   S553:INPUT ⎤
   S554:ON/OFF ⎦ DIGITAL PINP
   S555:SET
   S556:SELECT/ADJUST + ⎤
   S557:SELECT/ADJUST – ⎦ PRESET MENU
   S558:FACTORY ADJ
   S559:DPO
   S560:STD/AV MEM
   S561:VOLUME +
   S562:VOLUME –
   S563:CHANNEL +
   S564:CHANNEL –
   S565:INPUT SELECTOR
   S566:PRESET MENU ON/OFF

## 7.1 OVERALL WIRING DIAGRAM


PINP SELECT ASSEMBLY (AWZ3534) (➡P23-24)
GND V2 NC NC GND V1 NC NC GND LD
V4 GND +13.5V OUT GND PF 1 PF 2 PF 3 GND TV
Y1
A7
Y2
A8
(➡P31)
FRONT CONTROL ASSEMBLY(AWZ3540)
+13.5V DPO KEY
5VSTB GND 5VSTB
J551
B1
(➡P31)
IR RECEIVER ASSEMBLY (AWZ3543)
B2
ANTENNA
U17
KEY DPO +13.5V GND REM 5VSTB
A2
U16
INP2 5VSTB RELAY
INPUT
LD
VIDEO-1
VIDEO-2
VIDEO
AUDIO L (MONO) R
OUTPUT
REC (TO VIDEO)
TV
CONTROL OUT
AV I/O-3P· Y/C SEP ASSEMBLY (AWZ3529) (➡P23-24)
A1
U15
C GND Y +13.5V TU-L GND TU-R GND TU-V INP0 INP1 REM
A3
M-V GND S-V P-ON P-V GND S-F0 S-F1 S-F2 P.MUTE +13.5V GND
K2
U13
TREBLE BASS BAL VOLUME +13.5V A.MUTE 5V STB P.D GND
VIDEO·DEFLECTION ASSEMBLY (AWV1175)
1/3 : TUNER SECTION : (➡P21-22)
2/3 : VIDEO · DEFLECTION SECTION : (➡P27-30)
3/3 : CONTROL SECTION : (➡P32-33)
A6
K6
MON L GND MON R
L R
K1
U14
DSE2 DSE1 DSE0
K3
GND +35V
S-VIDEO INPUT LD
VIDEO -1
VIDEO -2
J572
LDC GND LDY GND V1C GND V1Y
J571
V2C GND V2Y
S-3P TERMINAL ASSEMBLY (AWZ3532) (➡P23)
AUDIO·DSE ASSEMBLY (AWZ3538) (➡P25-26)
K5
L LG
J13
BUILT-IN SPEAKERS APV1021
L
R
J14
R RG
K4
J251
1 9
9 1
AUDIO OUTPUT (VARIABLE)
L R
EXTERNAL SPEAKERS
SP TERMINAL ASSEMBLY (AWZ3545) (➡P26)
INPUT VIDEO-3
VIDEO
L (MONO)
AUDIO
R
S-VIDEO
B3
A5
V4 GND GND L4 GND R4
B4
A4
Y4 GND C4
FRONT INPUT TERMINAL ASSEMBLY (AWZ3547) (➡P23)
PINP SUB ASSEMBLY (AWZ3656) (➡P35)
X1
W4
+5V IN GND OUT
U9
W1
P.EN CLK DATA S.EN +9V C.BLK
PINP ASSEMBLY (AWZ3655) (➡P34-35)
M-V GND S-V P-ON P-V GND
S-F0 S-F1 S-F2 P. MUTE +13.5V GND
W3
W2
U19
J10
D.F GND
U8
+9V GND R +9V GND G +9V GND B
U1
+135V GND
J403
J404
U2
E4
CPU RESET ABL P.D. +13.5V DRIVE GND V.GND +30V +9V RELAY P.GND 12VSTB AC CLK
U6
SRV SRH SBV SBH
U7
P.KEY V.BLK H.BLK
U12
R.H R.V
U11
G.H G.V
U10
B.H B.V
FOCUS VARIABLE RESISTOR
⚠ VR1 ACX1061 (➡P30)
D.F
GND
SCREEN SCREEN SCREEN
FOCUS FOCUS FOCUS
FOCUS
R. G. B. CRT DRIVE ASSEMBLIES (➡P30)
M1
R GND +9V
SCREEN
J4
R.CRT DRIVE ASSEMBLY (AWZ3524)
☆ CRT ASSEMBLY R (AWY1128)
GND
J41
M2
J2
J7
N2
N1
G GND +9V
SCREEN
J5
G. CRT DRIVE ASSEMBLY (AWZ3525)
☆ CRT ASSEMBLY G (AWY1127)
GND
J42
N3
J3
J8
P2
P1
B GND +9V
SCREEN
J6
B.CRT DRIVE ASSEMBLY (AWZ3526)
☆ CRT ASSEMBLY B (AWY1129)
GND
J43
P3
J9
E5
FOCUS
HT- HT+ +220V
ANODE
GND
J405
FU403 6.3A/125V AEK-309 ⚠
FU404 4A/125V AEK1018 ⚠
FU405 6.3A/125V AEK-309 ⚠
FU406 4A/125V AEK1018 ⚠
FU401 8A/125V AEK1002 ⚠
J401
J402
⚠ AC120V 60Hz
AC POWER CORD ADG1056
☆POWER SUPPLY ASSEMBLY(AWV1203) (➡P39-40)
E3
+35V GND
+25V GND -25V
E2
G4
G5
P.KEY V.BLK H.BLK SBH SBV SRH SRV
CONVERGENCE ASSEMBLY (AWZ3523) (➡P37-38)
VR VD HR HD
G1
VR VD
G2
VR VD HR HD
G3
L3 B ⚠ ATL1078
L2 G ⚠ ATL1077
L1 R ⚠ ATL1076
HDY VCY VDY HCY
HDY VCY VDY
HDY VCY VDY HCY
1 2 3 4 5 6
A B C D

# 7.2 VIDEO • DEFLECTION ASSEMBLY (1/3 : TUNER SECTION)


VIDEO • DEFLECTION ASSEMBLY (1/3) (AWV1175)
● TUNER SECTION
ANTENNA
TV FRONT-END AXF1048
ANT
TU1 AGC +B IF TU2 PB LOCK CLOCK DATA ENABLE
P251 VT
P252 RF AGC
P253 IF IN
P256 APC
P258 VIDEO
P262 AFT
Q264 : VIDEO INVERTER
Q263 : FILTER PARAMETER
Q259 : BUFFER
Q262 : APC SWITCH
Q258 : VIDEO IF AMP
Q257 : AUDIO IF AMP
L253: ADJACENT AUDIO TRAP ADJ
Q254 : POWER SUPPLY FOR PLL
Q268 : H.SYNC. SEPARATOR
Q267 : BUFFER
Q269 :INVERTER BUFFER
AUDIO DET. ADJ
AFT ADJ
SYNC. DET. ADJ
IC251 :VIDEO IF, AUDIO IF AMP AND DETECTION
LOCK DET
AFT
VCO
APC DET
VIDEO DET
B.N.C
EQ
RF AGC
IF AGC
IF AMP
SIF DET
FM DET
L IH
P255 COMP.
P254 MPX VCO
P259 FIL. ADJ
RF AGC ADJ
P257 IF AGC
Q266 : BUFFER
Q265 : TV MUTE
Q260,261 : SWITCH
Q270 : +5V REGULATOR
Q255,256 : FORCED MONO SWITCH
IC252 US MPX DECODER
LFLT VCO LPF BPF DE EN VCC/2 VCC GND
SAP VCO SAP IND ST IND
MODE DISPLAY
MATRIX
RMS DET HPF NR SW VE
LOW SEP. ADJ
HIGH SEP. ADJ
VR255: dbx FILTER ADJ
VR254:VCO ADJ
VIDEO OUT P260
L CH P264
R CH P261
J103
VIDEO GND R CH GND L CH
P265 TEST
LOCK CLK DATA TVENB
+39V
(3/3) (→P32)
(2/3) (→P27)
VIDEO • DEFLECTION ASSEMBLY
+13.5V
TV-APC
+5V
STEREO SAP
MTS1 MTS0
TV-MUTE
HS AFT
+9V
(3/3) (→P32)
(2/3) (→P27)
VIDEO • DEFLECTION ASSEMBLY (3/3) J103 (→P32)

| | |
|---|---|
| IC251 | M51365SP |
| IC252 | CXA1124AS |
| Q254,262-264,<br>Q267,269 | 2SC1740S |
| Q255,256,260 | RN1203 |
| Q257,258 | 2SC2786 |
| Q259,261,266,Q268 | 2SA933S |
| Q265 | 2SC2878 |
| Q270 | 2SD438 |
| D251 | RD30ESB2 |
| D252-257 | 1SS252 |
| D258 | RD5.6ESB2 |

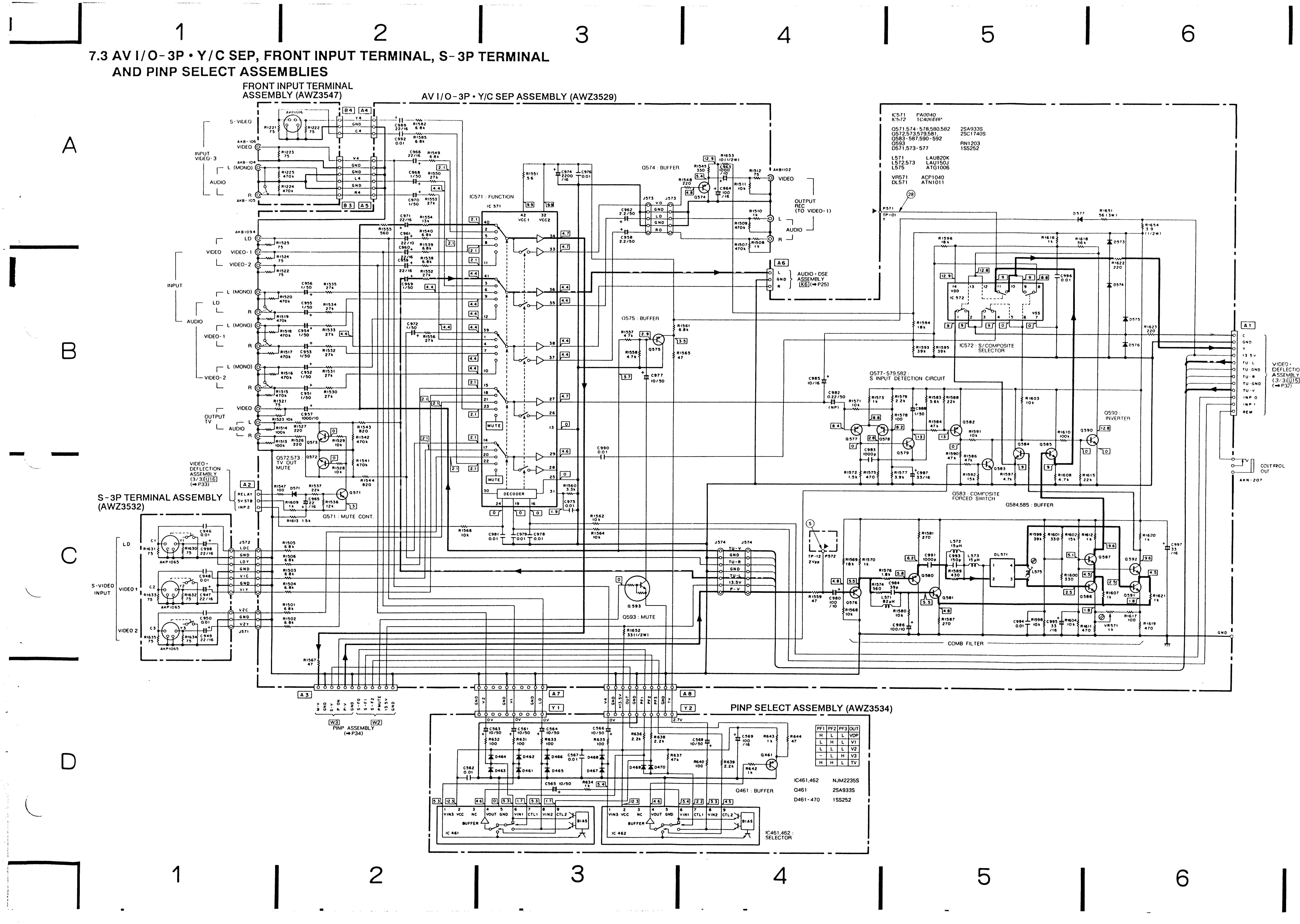
L251,260,262,263: LAU2R2M
L252 : LAUR27M
L253,259 : ATC-226
L258 : LAU120K
L255-257 : LAU1R2M
L264 : ATE-067
L261 : ATC-249
F251 : ATF1046
F252 : ATF1093
F253 : ATF-114
F254 : ATF-166
C364 : ACH1129
C372 : ACH1128
VR251,252 : ACP1042
VR253 : ACP1043
VR254,255 : ACP1045

NOTE : VOLTAGES OF THE TUNER SECTION AT 2ch , NO INPUT SIGNAL.

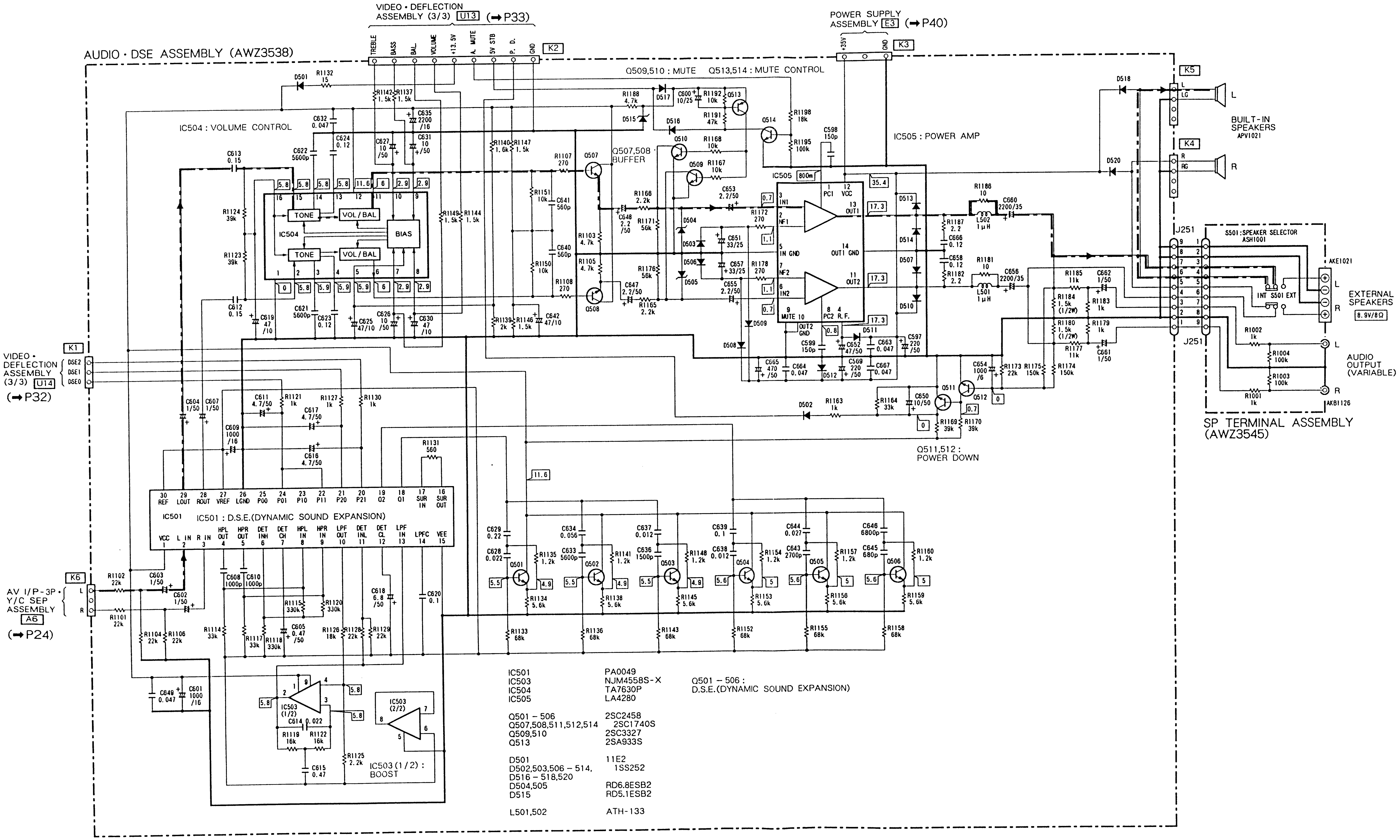
TRUTH TABLE OF MTS0 AND MTS1.

| | MTS0 | MTS1 |
|---|---|---|
| MAIN | H | L |
| SAP | L | H |
| MAIN/SAP | L | L |
| MONO | H | H |

## 7.3 AV I/O-3P • Y/C SEP, FRONT INPUT TERMINAL, S-3P TERMINAL AND PINP SELECT ASSEMBLIES

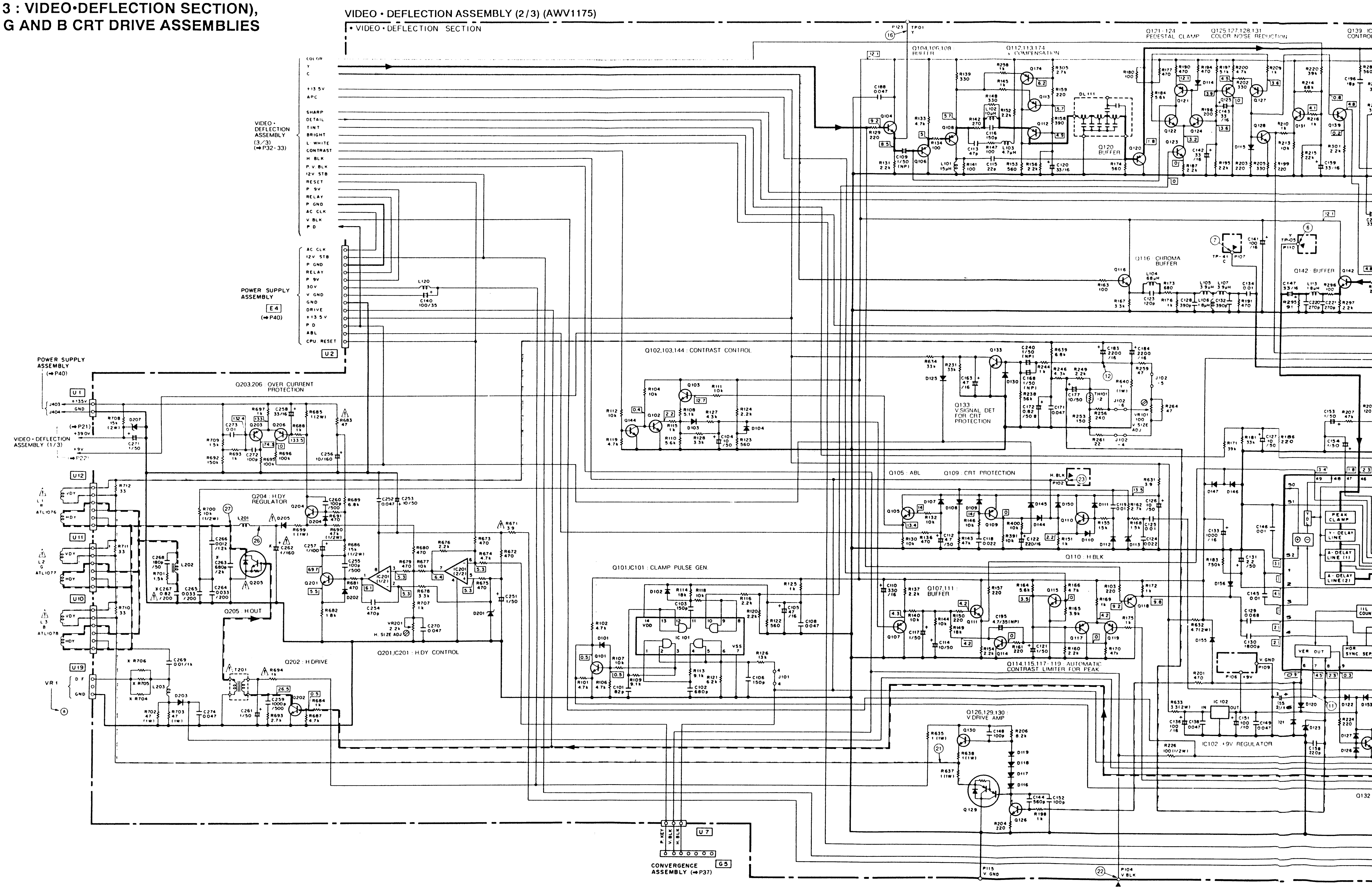

1
2
3
4
5
6
A
B
C
D
FRONT INPUT TERMINAL ASSEMBLY (AWZ3547)
AV I/O-3P • Y/C SEP ASSEMBLY (AWZ3529)
S-3P TERMINAL ASSEMBLY (AWZ3532)
PINP SELECT ASSEMBLY (AWZ3534)
S-VIDEO
INPUT VIDEO-3
VIDEO
AUDIO
L (MONO)
R
AKB-106
AKB-104
AKB-105
AKB1094
LD
VIDEO-1
VIDEO-2
INPUT
OUTPUT TV
IC571 : FUNCTION
DECODER
MUTE
Q574 : BUFFER
Q575 : BUFFER
OUTPUT REC (TO VIDEO-1)
AKB1102
AUDIO • DSE ASSEMBLY K6 (➡P25)
Q572,573 TV OUT MUTE
Q571 : MUTE CONT.
VIDEO • DEFLECTION ASSEMBLY (3/3) U16 (➡P33)
RELAY
5V STB
INP 2
Q593 : MUTE
S-VIDEO INPUT
VIDEO 1
VIDEO 2
AKP1065
IC571 PA0040
IC572 1C4066BP
Q571,574-578,580,582 2SA933S
Q572,573,579,581, Q583-587,590-592 2SC1740S
Q593 RN1203
D571,573-577 1SS252
L571 LAU820K
L572,573 LAU150J
L575 ATG1006
VR571 ACP1040
DL571 ATN1011
P571 TP-01 Y
IC572 : S/COMPOSITE SELECTOR
Q577-579,582 : S INPUT DETECTION CIRCUIT
Q590 : INVERTER
Q583 : COMPOSITE FORCED SWITCH
Q584,585 : BUFFER
COMB FILTER
TP-12 P572 2Vpp
VIDEO • DEFLECTION ASSEMBLY (3/3) U15 (➡P32)
CONTROL OUT
AKN-207
PINP ASSEMBLY W3 W2 (➡P34)
Q461 : BUFFER
IC461,462 : SELECTOR
IC 461
IC 462
BUFFER
BIAS
IC461,462 NJM2235S
Q461 2SA933S
D461-470 1SS252
PF1 PF2 PF3 OUT
H L L VDP
L H L V1
L L L V2
– L H V3
H H L TV

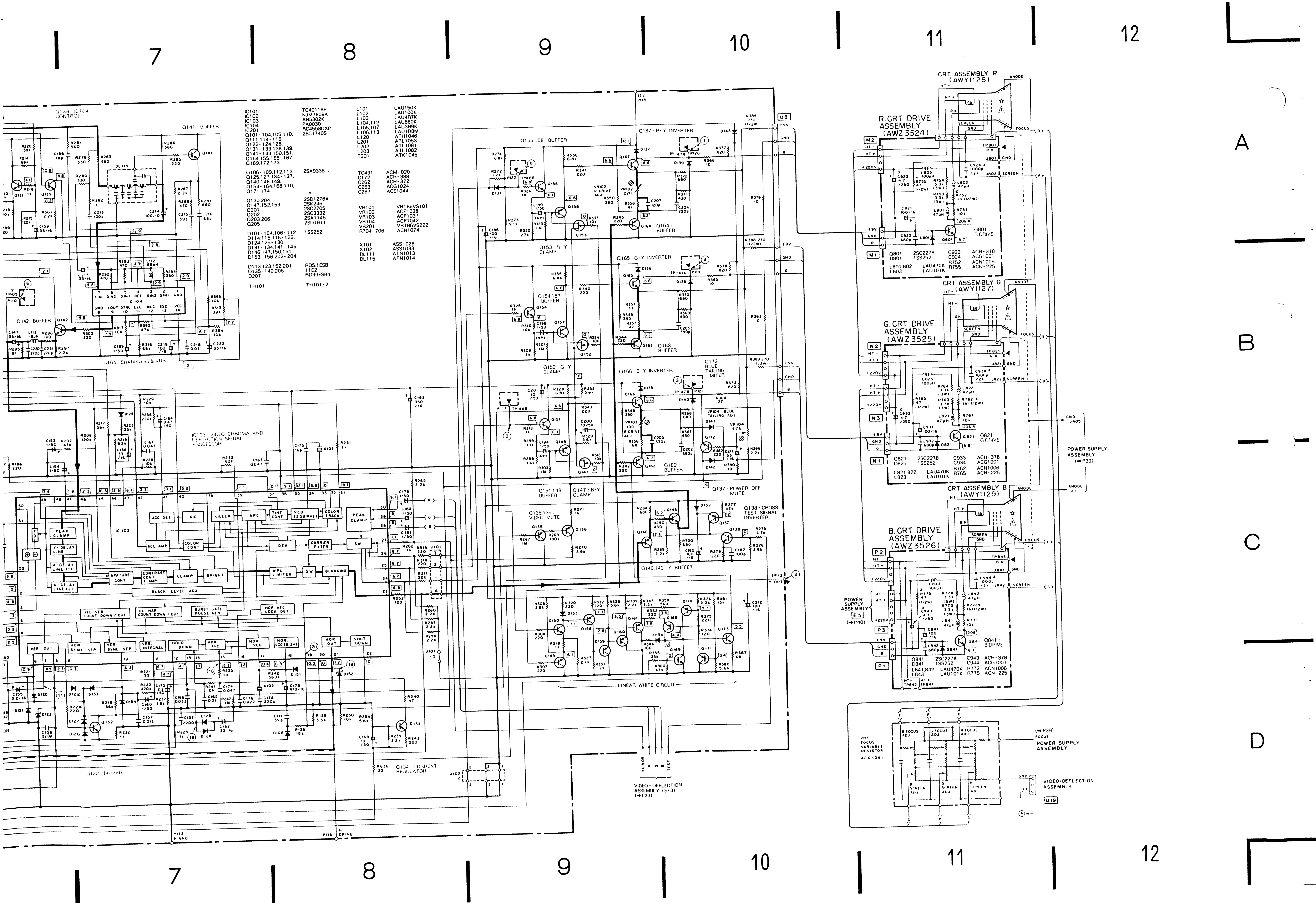
## 7.4 AUDIO • DSE AND SP TERMINAL ASSEMBLIES


AUDIO • DSE ASSEMBLY (AWZ3538)
VIDEO • DEFLECTION ASSEMBLY (3/3) U13 (➡P33)
K2
TREBLE
BASS
BAL
VOLUME
+13.5V
A. MUTE
5V STB
P. D.
GND
POWER SUPPLY ASSEMBLY E3 (➡P40)
+35V
GND
K3
Q509,510 : MUTE
Q513,514 : MUTE CONTROL
IC504 : VOLUME CONTROL
TONE
VOL/BAL
BIAS
Q507,508 : BUFFER
IC505 : POWER AMP
IC505
K5
K4
L
R
BUILT-IN SPEAKERS
APV1021
J251
S501 : SPEAKER SELECTOR
ASH1001
INT S501 EXT
AKE1021
EXTERNAL SPEAKERS
8.9V/8Ω
AUDIO OUTPUT (VARIABLE)
AKB1126
SP TERMINAL ASSEMBLY (AWZ3545)
Q511,512 : POWER DOWN
VIDEO • DEFLECTION ASSEMBLY (3/3) U14 (➡P32)
K1
DSE2
DSE1
DSE0
IC501 : D.S.E.(DYNAMIC SOUND EXPANSION)
AV I/P-3P • Y/C SEP ASSEMBLY A6 (➡P24)
K6
IC503 (1/2)
IC503 (2/2)
IC503 (1/2) : BOOST
Q501
Q502
Q503
Q504
Q505
Q506

| | | |
|---|---|---|
| IC501 | PA0049 | Q501 – 506 : |
| IC503 | NJM4558S-X | D.S.E.(DYNAMIC SOUND EXPANSION) |
| IC504 | TA7630P | |
| IC505 | LA4280 | |
| Q501 – 506 | 2SC2458 | |
| Q507,508,511,512,514 | 2SC1740S | |
| Q509,510 | 2SC3327 | |
| Q513 | 2SA933S | |
| D501 | 11E2 | |
| D502,503,506 – 514,<br>D516 – 518,520 | 1SS252 | |
| D504,505 | RD6.8ESB2 | |
| D515 | RD5.1ESB2 | |
| L501,502 | ATH-133 | |

## 7.5 VIDEO • DEFLECTION ASSEMBLY
### (2/3 : VIDEO•DEFLECTION SECTION), R, G AND B CRT DRIVE ASSEMBLIES


VIDEO • DEFLECTION ASSEMBLY (2/3) (AWV1175)
• VIDEO • DEFLECTION SECTION
VIDEO • DEFLECTION ASSEMBLY (3/3) (→P32-33)
POWER SUPPLY ASSEMBLY E4 (→P40)
POWER SUPPLY ASSEMBLY (→P40)
VIDEO • DEFLECTION ASSEMBLY (1/3)
COLOR
Y
C
+13.5V
APC
SHARP
DETAIL
TINT
BRIGHT
L WHITE
CONTRAST
H BLK
P.V BLK
12V STB
RESET
P 9V
RELAY
P GND
AC CLK
V BLK
P D
AC CLK
12V STB
P GND
RELAY
P 9V
30V
V GND
GND
DRIVE
+13.5V
P D
ABL
CPU RESET
U2
U1
U12
U11
U10
U19
U7
G5
L1 R ATL1076
L2 G ATL1077
L3 B ATL1078
VR1
Q203,206 : OVER CURRENT PROTECTION
Q204 : H.DY REGULATOR
Q205 : H.OUT
Q202 : H.DRIVE
Q201,IC201 : H.DY CONTROL
VR201 H. SIZE ADJ
Q102,103,144 : CONTRAST CONTROL
Q101,IC101 : CLAMP PULSE GEN.
Q104,106,108 BUFFER
Q112,113,174 Y COMPENSATION
Q120 BUFFER
Q121-124 PEDESTAL CLAMP
Q125,127,128,131 COLOR NOISE REDUCTION
Q139 CONTROL
Q116 CHROMA BUFFER
Q142 BUFFER
Q133 V.SIGNAL DET FOR CRT PROTECTION
VR101 V. SIZE ADJ
Q105 : ABL
Q109 : CRT PROTECTION
Q110 : H.BLK
Q107,111 : BUFFER
Q114,115,117-119 : AUTOMATIC CONTRAST LIMITER FOR PEAK
Q126,129,130 : V.DRIVE AMP
IC102 +9V REGULATOR
PEAK CLAMP
Y-DELAY LINE
A-DELAY LINE (1)
A-DELAY LINE (2)
VER OUT
HOR SYNC SEP
CONVERGENCE ASSEMBLY (→P37)
P.KEY
V.BLK
H.BLK
P115 V GND
P104 V BLK
P123 TP01 Y
TP-41 P107
TP-05 P110
H.BLK P102
Q132



7
8
9
10
11
12
A
B
C
D
Q133, IC104 CONTROL
Q141 : BUFFER
Q142 : BUFFER
IC 104
IC104 : SHARPNESS & VNR
DL115
IC103 : VIDEO CHROMA AND DEFLECTION SIGNAL PROCESSOR
IC 103
PEAK CLAMP
Y-DELAY LINE
A-DELAY LINE (1)
A-DELAY LINE (2)
APATURE CONT
CONTRAST CONT Y AMP
CLAMP
BRIGHT
BLACK LEVEL ADJ
ACC DET
AIC
KILLER
APC
TINT CONT
VCO (3.58 MHz)
COLOR TRACK
ACC AMP
COLOR CONT
DEM
CARRIER FILTER
PEAK CLAMP
SW
WPL LIMITER
SW
BLANKING
1/L VER COUNT DOWN / OUT
1/L HOR COUNT DOWN / OUT
BURST GATE PULSE GEN
HOR AFC LOCK DET
VER OUT
HOR SYNC SEP
VER SYNC SEP
VER INTEGRAL
HOLD DOWN
HOR AFC
HOR VCO
HOR VCC (6.3V)
HOR OUT
SHUT DOWN
Q132 : BUFFER
Q134 : CURRENT REGULATOR
P113 H GND
P116 H DRIVE
Q155,158 : BUFFER
Q167 : R-Y INVERTER
Q164 : BUFFER
Q153 : R-Y CLAMP
Q165 : G-Y INVERTER
Q154,157 BUFFER
Q163 : BUFFER
Q152 : G-Y CLAMP
Q166 : B-Y INVERTER
Q172 : BLUE TAILING LIMITER
Q162 : BUFFER
Q137 : POWER OFF MUTE
Q151,148 : BUFFER
Q147 : B-Y CLAMP
Q135,136 : VIDEO MUTE
Q138 : CROSS TEST SIGNAL INVERTER
Q140,143 : Y BUFFER
VR102 R DRIVE ADJ
VR103 B DRIVE ADJ
VR104 BLUE TAILING ADJ
LINEAR WHITE CIRCUIT
12V P118
TP13 Y-OUT
VIDEO·DEFLECTION ASSEMBLY (3/3) (→P33)
R G B TEST
J101
J102
U8
CRT ASSEMBLY R (AWY1128)
R.CRT DRIVE ASSEMBLY (AWZ 3524)
Q801 : R DRIVE
M2
M1
CRT ASSEMBLY G (AWY1127)
G.CRT DRIVE ASSEMBLY (AWZ3525)
Q821 G DRIVE
N2
N3
N1
CRT ASSEMBLY B (AWY1129)
B.CRT DRIVE ASSEMBLY (AWZ 3526)
Q841 : B DRIVE
P2
P3
P1
POWER SUPPLY ASSEMBLY E5 (→P40)
POWER SUPPLY ASSEMBLY (→P39)
GND J405
ANODE J1
ANODE
FOCUS
SCREEN
HT-
HT+
+220V
+9V
GND
VR1 FOCUS VARIABLE RESISTOR ACX1061
R FOCUS ADJ
G FOCUS ADJ
B FOCUS ADJ
R SCREEN ADJ
G SCREEN ADJ
B SCREEN ADJ
(→P39) FOCUS POWER SUPPLY ASSEMBLY
VIDEO·DEFLECTION ASSEMBLY
U19

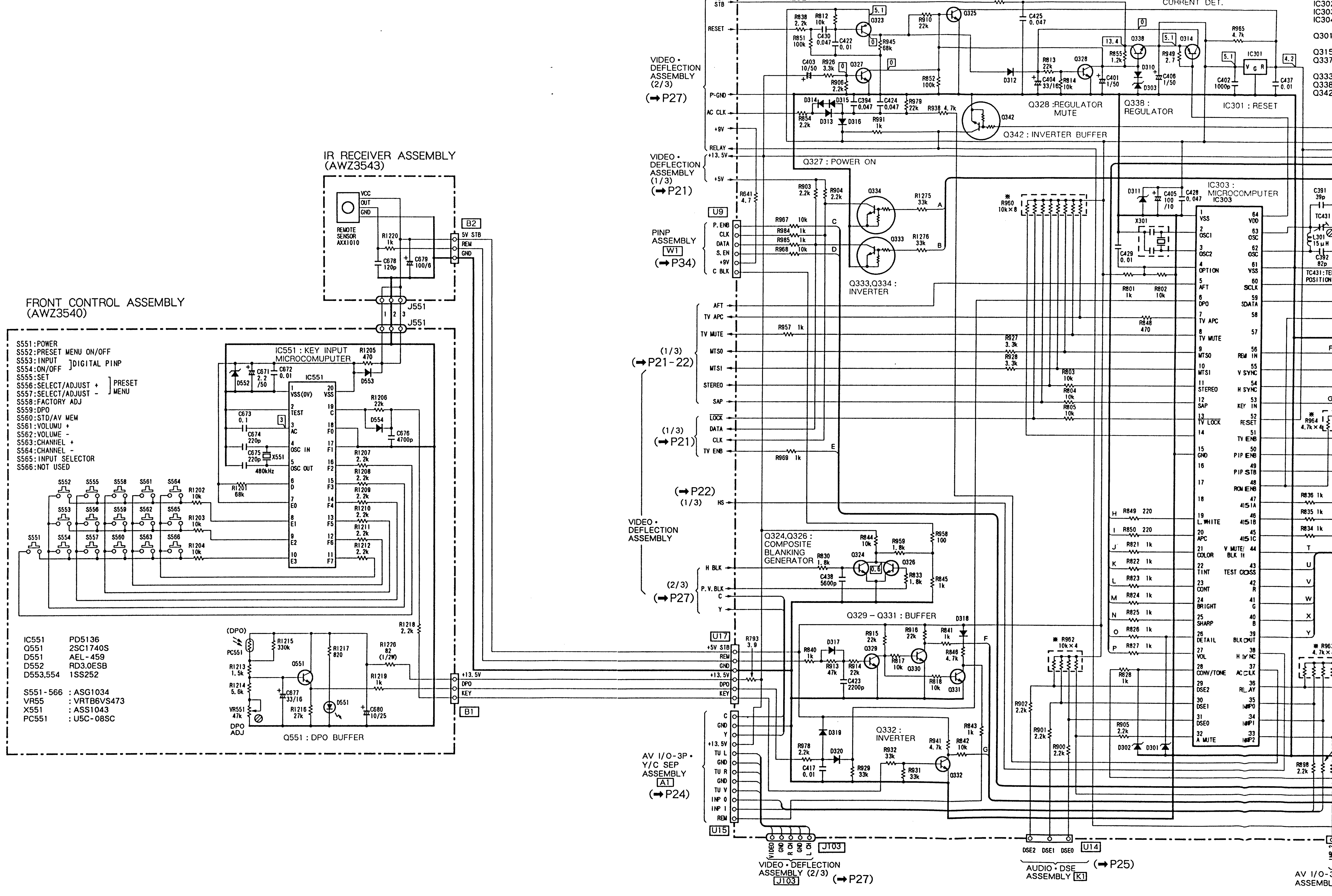
| | | | |
|---|---|---|---|
| IC101 | TC4011BP | L101 | LAU150K |
| IC102 | NJM7809A | L102 | LAU100K |
| IC103 | AN5302K | L103 | LAU4R7K |
| IC104 | PA0030 | L104,112 | LAU680K |
| IC201 | RC4558DXP | L105,107 | LAU3R9K |
| Q101-104,105,110.<br>Q111,114-116.<br>Q122-124,128.<br>Q131-133,138,139.<br>Q141-144,150,151.<br>Q154,155,165-167.<br>Q169,172,173 | 2SC1740S | L106,113 | LAU1R8M |
| | | L120 | ATH1046 |
| | | L201 | ATL1053 |
| | | L202 | ATL1081 |
| | | L203 | ATL1082 |
| | | T201 | ATK1045 |
| Q106-109,112,113.<br>Q125,127,134-137.<br>Q140,148,149.<br>Q154-164,168,170.<br>Q171,174 | 2SA933S | TC431 | ACM-020 |
| | | C172 | ACH-388 |
| | | C262 | ACH-372 |
| | | C263 | ACG1024 |
| | | C267 | ACE1044 |
| Q130,204 | 2SD1276A | VR101 | VRTB6VS101 |
| Q147,152,153 | 2SK246 | VR102 | ACP1038 |
| Q201 | 2SC2705 | VR103 | ACP1037 |
| Q202 | 2SC3332 | VR104 | ACP1042 |
| Q203,206 | 2SA1145 | VR201 | VRTB6VS222 |
| Q205 | 2SD1911 | R704-706 | ACN1074 |
| D101-104,106-112.<br>D114,115,116-122.<br>D124,125-130.<br>D131-134,141-145<br>D146,147,150,151.<br>D153-156,202-204 | 1SS252 | X101 | ASS-028 |
| | | X102 | ASS1033 |
| | | DL111 | ATN1013 |
| | | DL115 | ATN1014 |
| D113,123,152,201 | RD5.1ESB | | |
| D135-140,205 | 11E2 | | |
| D207 | RD39ESB4 | | |
| TH101 | TH101-2 | | |

| | | | |
|---|---|---|---|
| Q801 | 2SC2278 | C923 | ACH-378 |
| D801 | 1SS252 | C924 | ACG1001 |
| L801,802 | LAU470K | R752 | ACN1006 |
| L803 | LAU101K | R755 | ACN-225 |

| | | | |
|---|---|---|---|
| Q821 | 2SC2278 | C933 | ACH-378 |
| D821 | 1SS252 | C934 | ACG1001 |
| L821,822 | LAU470K | R762 | ACN1006 |
| L823 | LAU101K | R765 | ACN-225 |

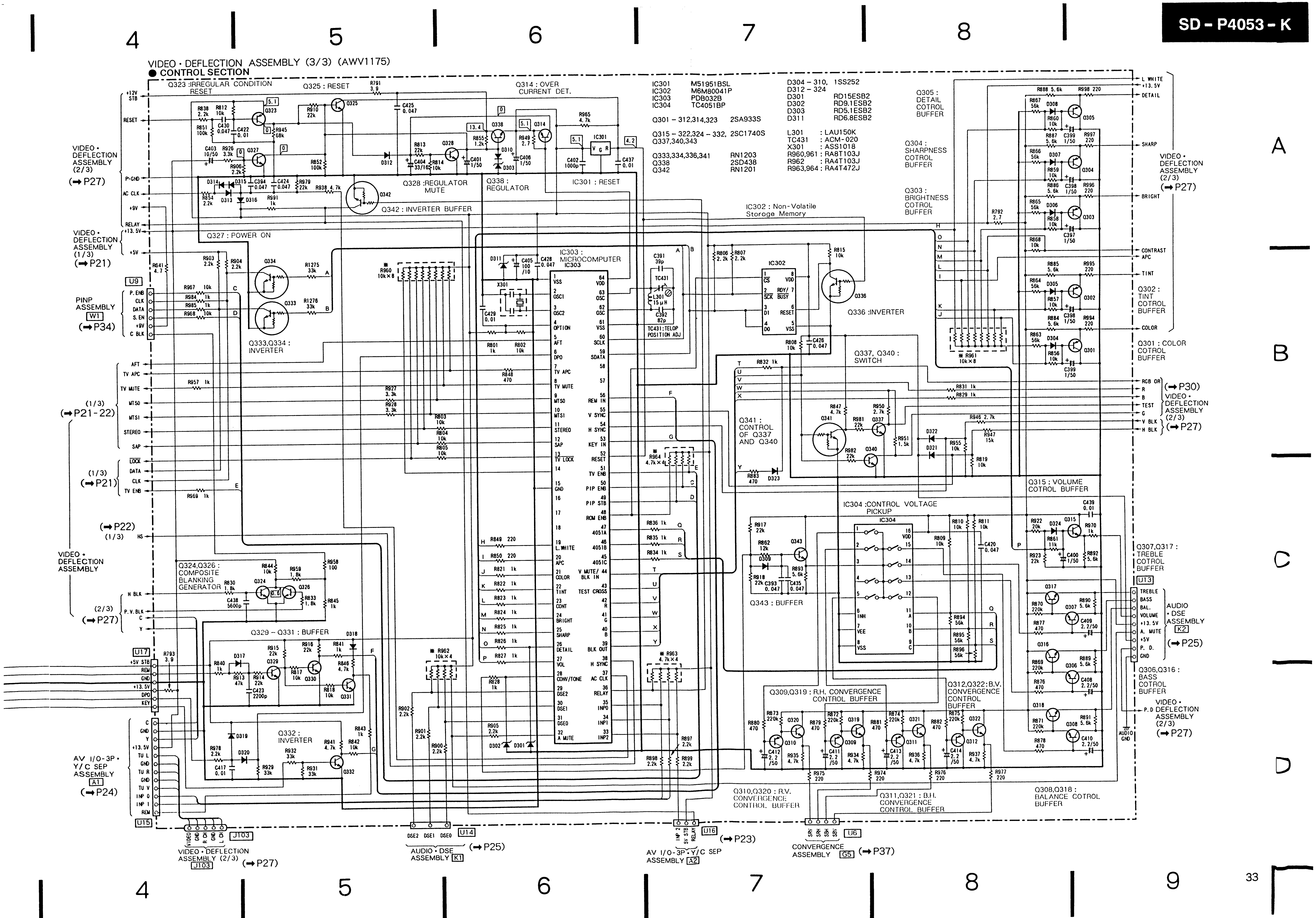
| | | | |
|---|---|---|---|
| Q841 | 2SC2278 | C943 | ACH-378 |
| D841 | 1SS252 | C944 | ACG1001 |
| L841,842 | LAU470K | R772 | ACN1006 |
| L843 | LAU101K | R775 | ACN-225 |

## 7.6 VIDEO • DEFLECTION ASSEMBLY (3/3 : CONTROL SECTION), FRONT CONTROL AND IR RECEIVER ASSEMBLIES

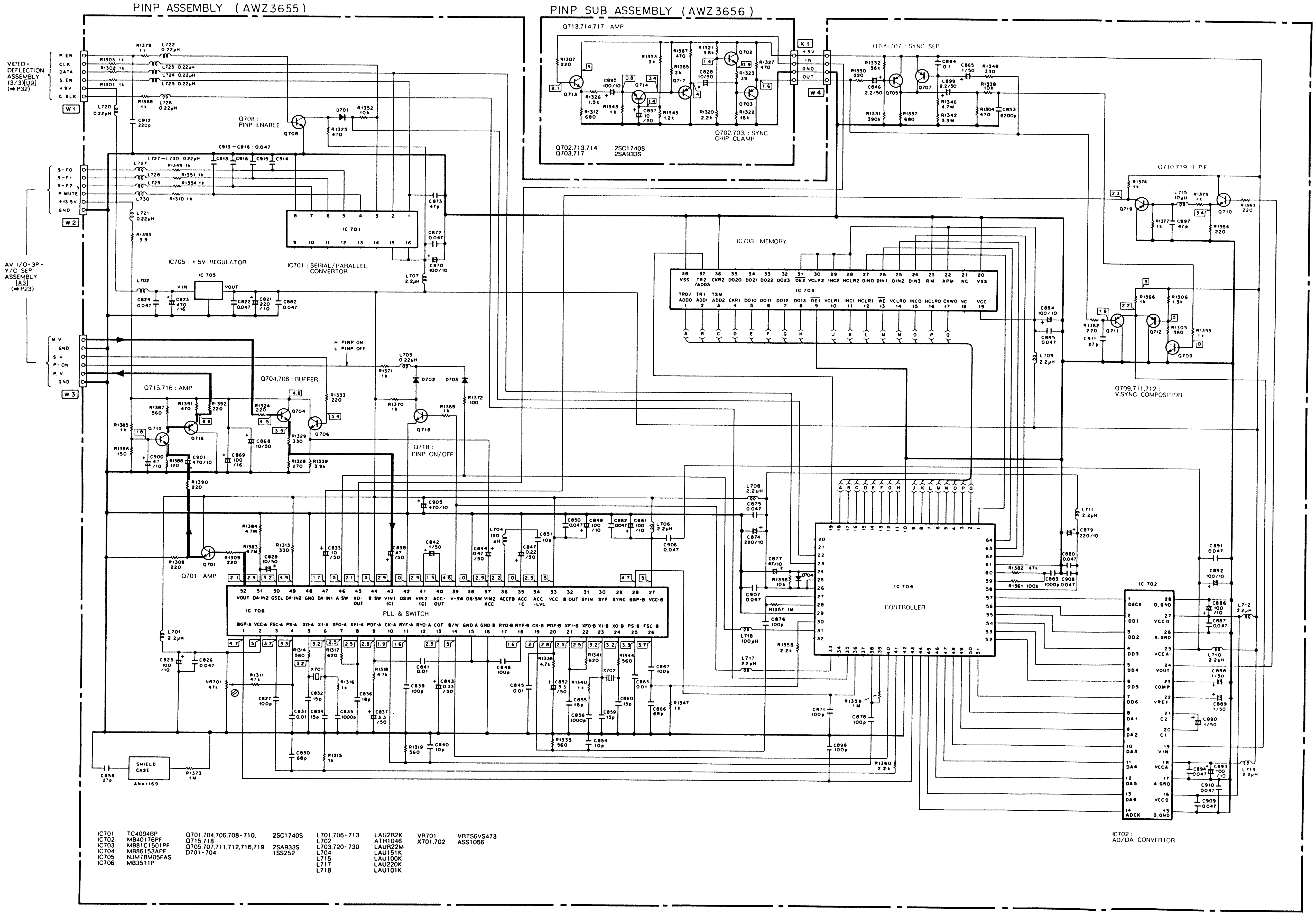

VIDEO • DEFLECTION ASSEMBLY (3/3) (AWV1175)
● CONTROL SECTION
IR RECEIVER ASSEMBLY (AWZ3543)
REMOTE SENSOR AXX1010
VCC
OUT
GND
R1220 1k
C678 120p
C679 100/6
B2
5V STB
REM
GND
J551
FRONT CONTROL ASSEMBLY (AWZ3540)
S551:POWER
S552:PRESET MENU ON/OFF
S553:INPUT
S554:ON/OFF
DIGITAL PINP
S555:SET
S556:SELECT/ADJUST +
S557:SELECT/ADJUST -
PRESET MENU
S558:FACTORY ADJ
S559:DPO
S560:STD/AV MEM
S561:VOLUMU +
S562:VOLUME -
S563:CHANNEL +
S564:CHANNEL -
S565:INPUT SELECTOR
S566:NOT USED
IC551 : KEY INPUT MICROCOMUPUTER
IC551
VSS(0V)
TEST
AC
OSC IN
OSC OUT
480kHz
X551
D552
D553
D554
R1205 470
R1206 22k
C676 4700p
R1201 68k
R1202 10k
R1203 10k
R1204 10k
R1207 2.2k
R1208 2.2k
R1209 2.2k
R1210 2.2k
R1211 2.2k
R1212 2.2k
R1218 2.2k
IC551 PD5136
Q551 2SC1740S
D551 AEL-459
D552 RD3.0ESB
D553,554 1SS252
S551-566 : ASG1034
VR55 : VRTB6VS473
X551 : ASS1043
PC551 : U5C-08SC
(DPO)
PC551
R1215 330k
R1217 820
R1226 82 (1/2W)
R1219 1k
R1213 1.5k
R1214 5.6k
VR551 47k
DPO ADJ
C677 33/16
R1216 27k
D551
C680 10/25
Q551
Q551 : DPO BUFFER
+13.5V
DPO
KEY
B1
VIDEO • DEFLECTION ASSEMBLY (2/3) (➡P27)
+12V STB
RESET
P-GND
AC CLK
+9V
RELAY
VIDEO • DEFLECTION ASSEMBLY (1/3) (➡P21)
+13.5V
+5V
PINP ASSEMBLY W1 (➡P34)
U9
P.ENB
CLK
DATA
S.EN
+9V
C BLK
AFT
TV APC
TV MUTE
MTS0
MTS1
STEREO
SAP
(1/3) (➡P21-22)
LOCK
DATA
CLK
TV ENB
(1/3) (➡P21)
(➡P22) (1/3)
HS
VIDEO • DEFLECTION ASSEMBLY
H BLK
P.V.BLK
C
Y
(2/3) (➡P27)
U17
+5V STB
REM
GND
+13.5V
DPO
KEY
AV I/O-3P • Y/C SEP ASSEMBLY A1 (➡P24)
U15
C
GND
Y
+13.5V
TU L
GND
TU R
GND
TU V
INP 0
INP 1
REM
Q323 :IRREGULAR CONDITION RESET
Q325 : RESET
Q314 : OVER CURRENT DET.
Q328 :REGULATOR MUTE
Q338 : REGULATOR
IC301 : RESET
Q342 : INVERTER BUFFER
Q327 : POWER ON
Q333,Q334 : INVERTER
IC303 : MICROCOMPUTER IC303
X301
Q324,Q326 : COMPOSITE BLANKING GENERATOR
Q329 – Q331 : BUFFER
Q332 : INVERTER
R641 4.7
R793 3.9
R791 3.9
R960 10k×8
R962 10k×4
1 VSS
2 OSC1
3 OSC2
4 OPTION
5 AFT
6 DPO
7 TV APC
8 TV MUTE
9 MTS0
10 MTS1
11 STEREO
12 SAP
13 TV LOCK
14
15 GND
16
17
18
19 L WHITE
20 APC
21 COLOR
22 TINT
23 CONT
24 BRIGHT
25 SHARP
26 DETAIL
27 VOL
28 CONV/TONE
29 DSE2
30 DSE1
31 DSE0
32 A MUTE
64 VDD
63 OSC
62 OSC
61 VSS
60 SCLK
59 SDATA
58
57
56 REM IN
55 V SYNC
54 H SYNC
53 KEY IN
52 RESET
51 TV ENB
50 PIP ENB
49 PIP STB
48 ROM ENB
47 4051A
46 4051B
45 4051C
44 V MUTE/ BLK II
43 TEST CROSS
42 R
41 G
40 B
39 BLK OUT
38 H SYNC
37 AC CLK
36 RELAY
35 INP0
34 INP1
33 INP2
VIDEO • DEFLECTION ASSEMBLY (2/3) J103 (➡P27)
J103
VIDEO GND R CH GND L CH
DSE2 DSE1 DSE0
U14
AUDIO • DSE ASSEMBLY K1 (➡P25)
AV I/O-3
ASSEMBL
IC30
IC30
IC30
IC30
Q301
Q315
Q337
Q333
Q33
Q342
C391 39p
TC431
L301 15µH
C392 82p
TC431:TE POSITION

## VIDEO • DEFLECTION ASSEMBLY (3/3) (AWV1175)

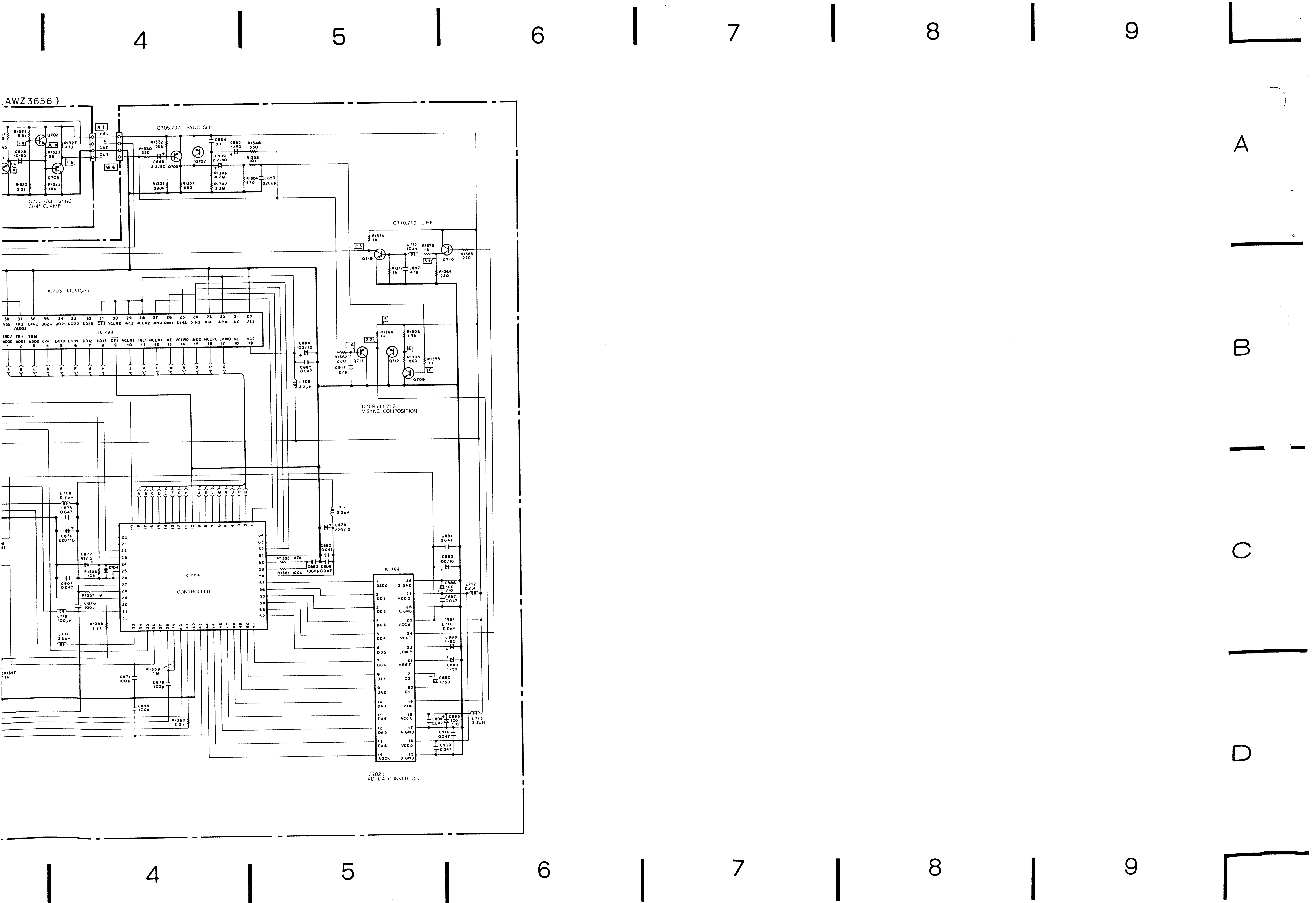
### ● CONTROL SECTION


4
5
6
7
8
9
A
B
C
D
IC301 M51951BSL
IC302 M6M80041P
IC303 PDB032B
IC304 TC4051BP
Q301 – 312,314,323 2SA933S
Q315 – 322,324 – 332, Q337,340,343 2SC1740S
Q333,334,336,341 RN1203
Q338 2SD438
Q342 RN1201
D304 – 310, D312 – 324 1SS252
D301 RD15ESB2
D302 RD9.1ESB2
D303 RD5.1ESB2
D311 RD6.8ESB2
L301 : LAU150K
TC431 : ACM-020
X301 : ASS1018
R960,961 : RA8T103J
R962 : RA4T103J
R963,964 : RA4T472J
Q323 :IRREGULAR CONDITION RESET
Q325 : RESET
Q314 : OVER CURRENT DET.
Q328 :REGULATOR MUTE
Q338 : REGULATOR
IC301 : RESET
Q342 : INVERTER BUFFER
Q327 : POWER ON
Q333,Q334 : INVERTER
IC303 : MICROCOMPUTER IC303
IC302 : Non-Volatile Storoge Memory
TC431:TELOP POSITION ADJ
Q336 :INVERTER
Q337, Q340 : SWITCH
Q341 : CONTROL OF Q337 AND Q340
Q305 : DETAIL COTROL BUFFER
Q304 : SHARPNESS COTROL BUFFER
Q303 : BRIGHTNESS COTROL BUFFER
Q302 : TINT COTROL BUFFER
Q301 : COLOR COTROL BUFFER
Q315 : VOLUME COTROL BUFFER
IC304 :CONTROL VOLTAGE PICKUP
Q343 : BUFFER
Q324,Q326 : COMPOSITE BLANKING GENERATOR
Q329 – Q331 : BUFFER
Q332 : INVERTER
Q309,Q319 : R.H. CONVERGENCE CONTROL BUFFER
Q312,Q322 : B.V. CONVERGENCE CONTROL BUFFER
Q310,Q320 : R.V. CONVERGENCE CONTROL BUFFER
Q311,Q321 : B.H. CONVERGENCE CONTROL BUFFER
Q308,Q318 : BALANCE COTROL BUFFER
Q307,Q317 : TREBLE COTROL BUFFER
Q306,Q316 : BASS COTROL BUFFER
VIDEO • DEFLECTION ASSEMBLY (2/3) (➡P27)
VIDEO • DEFLECTION ASSEMBLY (1/3) (➡P21)
PINP ASSEMBLY W1 (➡P34)
(1/3) (➡P21-22)
(1/3) (➡P21)
(➡P22) (1/3)
VIDEO • DEFLECTION ASSEMBLY
(2/3) (➡P27)
AV I/O-3P • Y/C SEP ASSEMBLY A1 (➡P24)
VIDEO • DEFLECTION ASSEMBLY (2/3) J103 (➡P27)
AUDIO • DSE ASSEMBLY K1 (➡P25)
AV I/O-3P • Y/C SEP ASSEMBLY A2 (➡P23)
CONVERGENCE ASSEMBLY G5 (➡P37)
(➡P30)
VIDEO • DEFLECTION ASSEMBLY (2/3) (➡P27)
AUDIO • DSE ASSEMBLY K2 (➡P25)
VIDEO • P.D DEFLECTION ASSEMBLY (2/3) (➡P27)
U9
U17
U15
J103
U14
U16
U6
U13
L WHITE
+13.5V
DETAIL
SHARP
BRIGHT
CONTRAST
APC
TINT
COLOR
RGB OR
R
B
TEST
G
V BLK
H BLK
TREBLE
BASS
BAL.
VOLUME
A. MUTE
+5V
P. D.
GND

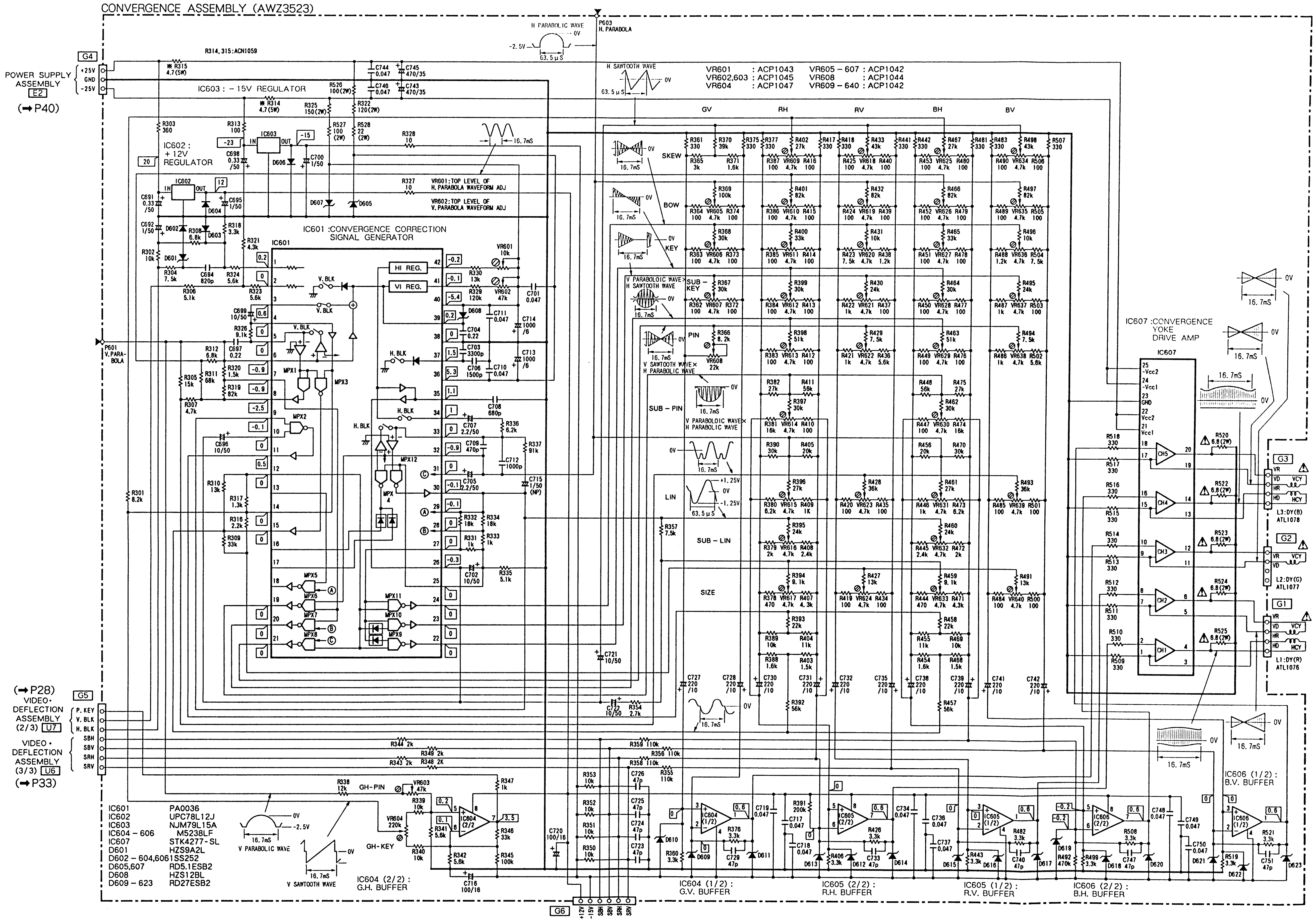
## 7.7 PINP AND PINP SUB ASSEMBLIES


A
B
C
D
PINP ASSEMBLY (AWZ3655)
PINP SUB ASSEMBLY (AWZ3656)
VIDEO • DEFLECTION ASSEMBLY (3/3) U9 (➡P32)
AV I/O-3P • Y/C SEP ASSEMBLY A3 (➡P23)
P.EN
CLK
DATA
S.EN
+9V
C.BLK
W1
S-F0
S-F1
S-F2
P.MUTE
+13.5V
GND
W2
M.V
GND
S.V
P-ON
P.V
GND
W3
X1
+5V
IN
GND
OUT
W4
Q713,714,717 : AMP
Q702,703, : SYNC CHIP CLAMP
Q702,713,714 2SC1740S
Q703,717 2SA933S
Q705,707 : SYNC SEP
Q710,719 : L.P.F
Q708 : PINP ENABLE
IC701
IC701 : SERIAL/PARALLEL CONVERTOR
IC705 : +5V REGULATOR
IC705
VIN
VOUT
IC703 : MEMORY
IC703
Q709,711,712 : V.SYNC COMPOSITION
H. PINP ON
L. PINP OFF
Q704,706 : BUFFER
Q715,716 : AMP
Q718 : PINP ON/OFF
Q701 : AMP
IC706
PLL & SWITCH
IC704
CONTROLLER
IC702
IC702 : AD/DA CONVERTOR
SHIELD CASE
ANK1169
VR701 47k

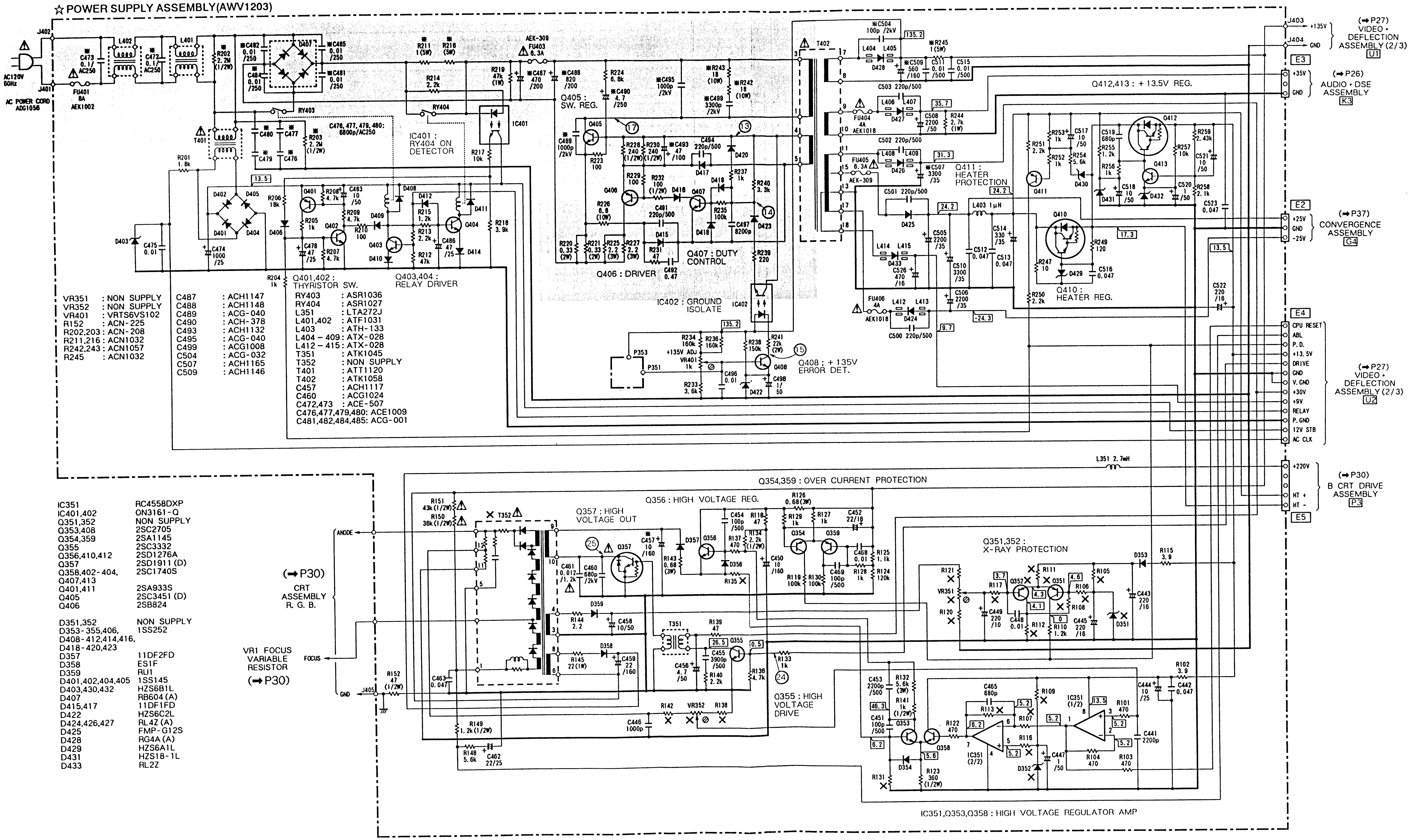
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| IC701 | TC4094BP | Q701,704,706,708-710,<br>Q715,718 | 2SC1740S | L701,706-713 | LAU2R2K | VR701 | VRTS6VS473 |
| IC702 | MB40176PF | | | L702 | ATH1046 | X701,702 | ASS1056 |
| IC703 | MB81C1501PF | Q705,707,711,712,716,719 | 2SA933S | L703,720-730 | LAUR22M | | |
| IC704 | MB86153APF | D701-704 | 1SS252 | L704 | LAU151K | | |
| IC705 | NJM78M05FAS | | | L715 | LAU100K | | |
| IC706 | MB3511P | | | L717 | LAU220K | | |
| | | | | L718 | LAU101K | | |


4
5
6
7
8
9
A
B
C
D
AWZ3656 )
X 1
+5V
IN
GND
OUT
W 4
R1321 5.6k
Q702
R1327 470
R1323 39
C828 10/50
Q703
R1320 2.2k
R1322 18k
Q702,703 : SYNC CHIP CLAMP
Q705,707 : SYNC SEP.
R1332 56k
R1330 220
C846 2.2/50
Q705
Q707
C864 0.1
C865 1/50
R1348 330
C899 2.2/50
R1338 10k
R1346 4.7M
R1342 3.3M
R1304 470
C853 8200p
R1331 390k
R1337 680
Q710,719 : L.P.F.
R1374 1k
L715 10μH
R1375 1k
Q719
Q710
R1363 220
R1377 1k
C897 47p
R1364 220
IC703 MEMORY
IC 703
38 VSS
37 TR2/ADD3
36 CKR2
35 DO20
34 DO21
33 DO22
32 DO23
31 OE2
30 VCLR2
29 INC2
28 HCLR2
27 DIN0
26 DIN1
25 DIN2
24 DIN3
23 RM
22 APM
21 NC
20 VSS
1 TR0/ADD0
2 TR1 ADD1
3 TSM ADD2
4 CKR1
5 DO10
6 DO11
7 DO12
8 DO13
9 OE1
10 VCLR1
11 INC1
12 HCLR1
13 WE
14 VCLR0
15 INC0
16 HCLR0
17 CKW0
18 NC
19 VCC
A B C D E F G H J K L M N O P Q
C884 100/10
C885 0.047
L709 2.2μH
R1362 220
C911 27p
Q711
Q712
R1366 1k
R1306 1.3k
R1305 560
R1355 1k
Q709
Q709,711,712 : V.SYNC COMPOSITION
L708 2.2μH
C875 0.047
C874 220/10
C877 47/10
R1356 10k
D704
C907 0.047
R1357 1M
C876 100p
L718 100μH
L717 2.2μH
R1358 2.2k
IC 704
CONTROLLER
R1382 47k
R1361 100k
C883 1000p
C908 0.047
C880 0.047
L711 2.2μH
C879 220/10
R1359 1M
C871 100p
C878 100p
C898 100p
R1360 2.2k
R1347 1k
IC 702
1 DACK
2 DD1
3 DD2
4 DD3
5 DD4
6 DD5
7 DD6
8 DA1
9 DA2
10 DA3
11 DA4
12 DA5
13 DA6
14 ADCK
28 D.GND
27 VCCD
26 A.GND
25 VCCA
24 VOUT
23 COMP
22 VREF
21 C2
20 C1
19 VIN
18 VCCA
17 A.GND
16 VCCD
15 D.GND
C891 0.047
C892 100/10
C886 100/10
C887 0.047
L712 2.2μH
L710 2.2μH
C888 1/50
C889 1/50
C890 1/50
C894 0.047
C893 100/10
L713 2.2μH
C910 0.047
C909 0.047
IC702 : AD/DA CONVERTOR

## 7.8 CONVERGENCE ASSEMBLY


CONVERGENCE ASSEMBLY (AWZ3523)
POWER SUPPLY ASSEMBLY E2 (→P40)
G4
+25V
GND
-25V
R314, 315:ACN1059
IC603 : -15V REGULATOR
IC602 : +12V REGULATOR
IC601 :CONVERGENCE CORRECTION SIGNAL GENERATOR
HI REG.
VI REG.
VR601:TOP LEVEL OF H. PARABOLA WAVEFORM ADJ
VR602:TOP LEVEL OF V. PARABOLA WAVEFORM ADJ
H PARABOLIC WAVE
P603 H. PARABOLA
P601 V.PARA-BOLA
H SAWTOOTH WAVE
VR601 : ACP1043
VR602,603 : ACP1045
VR604 : ACP1047
VR605 - 607 : ACP1042
VR608 : ACP1044
VR609 - 640 : ACP1042
GV
RH
RV
BH
BV
SKEW
BOW
KEY
SUB - KEY
PIN
SUB - PIN
LIN
SUB - LIN
SIZE
IC607 :CONVERGENCE YOKE DRIVE AMP
IC607
CH1
CH2
CH3
CH4
CH5
G3
G2
G1
L3:DY(B) ATL1078
L2:DY(G) ATL1077
L1:DY(R) ATL1076
(→P28)
VIDEO·DEFLECTION ASSEMBLY (2/3) U7
G5
P. KEY
V. BLK
H. BLK
VIDEO·DEFLECTION ASSEMBLY (3/3) U6
(→P33)
SBH
SBV
SRH
SRV
GH-PIN
GH-KEY
V PARABOLIC WAVE
V SAWTOOTH WAVE
IC604 (2/2) : G.H. BUFFER
IC604 (1/2) : G.V. BUFFER
IC605 (2/2) : R.H. BUFFER
IC605 (1/2) : R.V. BUFFER
IC606 (2/2) : B.H. BUFFER
IC606 (1/2) : B.V. BUFFER
G6
+12V
-15V
SBH
SBV
SRH
SRV
IC601 PA0036
IC602 UPC78L12J
IC603 NJM79L15A
IC604 - 606 M5238LF
IC607 STK4277-SL
D601 HZS9A2L
D602 - 604,606 1SS252
D605,607 RD5.1ESB2
D608 HZS12BL
D609 - 623 RD27ESB2

## 7.9 POWER SUPPLY ASSEMBLY


☆POWER SUPPLY ASSEMBLY(AWV1203)
AC120V 60Hz
AC POWER CORD ADG1056
J402
J401
FU401 8A AEK1002
L402
L401
T401
RY403
RY404
IC401 : RY404 ON DETECTOR
IC401
AEK-309 FU403 6.3A
Q405 : SW. REG.
Q406 : DRIVER
Q407 : DUTY CONTROL
IC402 : GROUND ISOLATE
Q408 : +135V ERROR DET.
Q401,402 : THYRISTOR SW.
Q403,404 : RELAY DRIVER
T402
Q412,413 : +13.5V REG.
Q411 : HEATER PROTECTION
Q410 : HEATER REG.
J403 +135V
J404 GND
(➡P27) VIDEO・DEFLECTION ASSEMBLY (2/3) U1
E3
+35V
GND
(➡P26) AUDIO・DSE ASSEMBLY K3
E2
+25V
GND
-25V
(➡P37) CONVERGENCE ASSEMBLY G4
E4
CPU RESET
ABL
P.D.
+13.5V
DRIVE
GND
V.GND
+30V
+9V
RELAY
P.GND
12V STB
AC CLK
(➡P27) VIDEO・DEFLECTION ASSEMBLY (2/3) U2
+220V
HT +
HT -
(➡P30) B CRT DRIVE ASSEMBLY P3
E5
L351 2.7mH
Q354,359 : OVER CURRENT PROTECTION
Q356 : HIGH VOLTAGE REG.
Q357 : HIGH VOLTAGE OUT
T352
ANODE
(➡P30) CRT ASSEMBLY R. G. B.
VR1 FOCUS VARIABLE RESISTOR (➡P30)
FOCUS
GND
J405
T351
Q355 : HIGH VOLTAGE DRIVE
Q351,352 : X-RAY PROTECTION
IC351,Q353,Q358 : HIGH VOLTAGE REGULATOR AMP
IC351 (1/2)
IC351 (2/2)

| | |
|---|---|
| VR351 | : NON SUPPLY |
| VR352 | : NON SUPPLY |
| VR401 | : VRTS6VS102 |
| R152 | : ACN-225 |
| R202,203 | : ACN-208 |
| R211,216 | : ACN1032 |
| R242,243 | : ACN1057 |
| R245 | : ACN1032 |

| | |
|---|---|
| C487 | : ACH1147 |
| C488 | : ACH1148 |
| C489 | : ACG-040 |
| C490 | : ACH-378 |
| C493 | : ACH1132 |
| C495 | : ACG-040 |
| C499 | : ACG1008 |
| C504 | : ACG-032 |
| C507 | : ACH1165 |
| C509 | : ACH1146 |

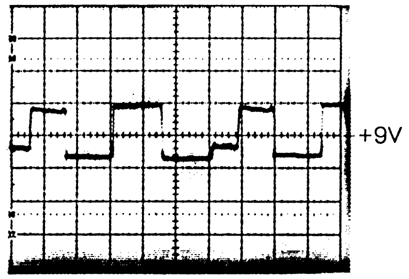
| | |
|---|---|
| RY403 | : ASR1036 |
| RY404 | : ASR1027 |
| L351 | : LTA272J |
| L401,402 | : ATF1031 |
| L403 | : ATH-133 |
| L404 – 409 | : ATX-028 |
| L412 – 415 | : ATX-028 |
| T351 | : ATK1045 |
| T352 | : NON SUPPLY |
| T401 | : ATT1120 |
| T402 | : ATK1058 |
| C457 | : ACH1117 |
| C460 | : ACG1024 |
| C472,473 | : ACE-507 |
| C476,477,479,480 | : ACE1009 |
| C481,482,484,485 | : ACG-001 |

| | |
|---|---|
| IC351 | RC4558DXP |
| IC401,402 | ON3161-Q |
| Q351,352 | NON SUPPLY |
| Q353,408 | 2SC2705 |
| Q354,359 | 2SA1145 |
| Q355 | 2SC3332 |
| Q356,410,412 | 2SD1276A |
| Q357 | 2SD1911 (D) |
| Q358,402-404,<br>Q407,413 | 2SC1740S |
| Q401,411 | 2SA933S |
| Q405 | 2SC3451 (D) |
| Q406 | 2SB824 |
| D351,352 | NON SUPPLY |
| D353-355,406,<br>D408-412,414,416,<br>D418-420,423 | 1SS252 |
| D357 | 11DF2FD |
| D358 | ES1F |
| D359 | RU1 |
| D401,402,404,405 | 1SS145 |
| D403,430,432 | HZS6B1L |
| D407 | RB604 (A) |
| D415,417 | 11DF1FD |
| D422 | HZS6C2L |
| D424,426,427 | RL4Z (A) |
| D425 | FMP-G12S |
| D428 | RG4A (A) |
| D429 | HZS6A1L |
| D431 | HZS18-1L |
| D433 | RL2Z |

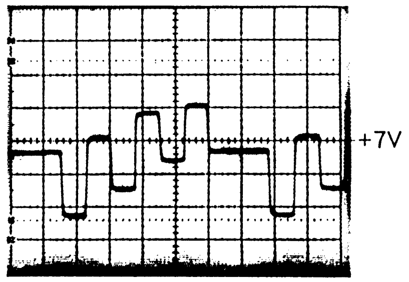
## The waveforms at each position

Input signal ; color bar VDP input
Picture quality:standard
Range : DC range ( without notice )

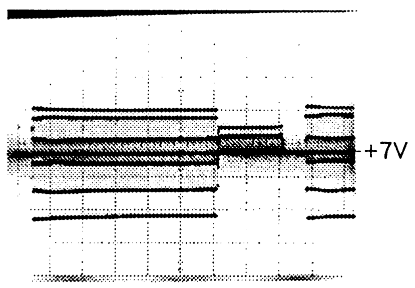
① **TP-47R**
V:1V/div, H:10μsec/div



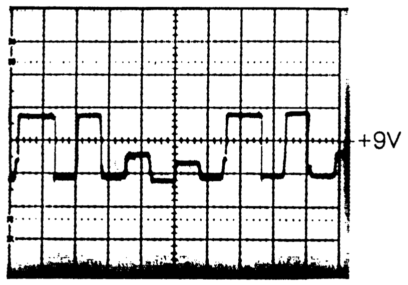
② **TP-46B**
V:1V/div, **H:10μsec/div**



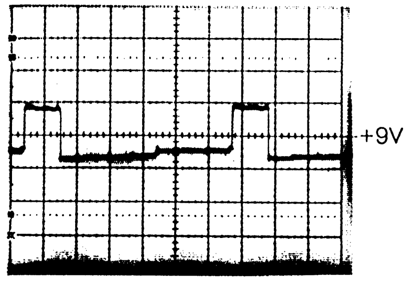
V:1V/div, **H:2μsec/div**



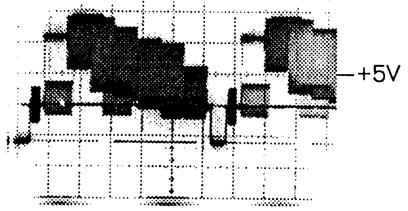
③ **TP-47B**
V:1V/div, H:10μsec/div



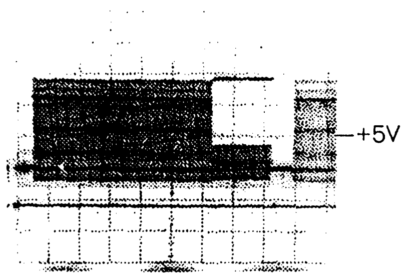
④ **TP-47G**
V:1V/div, H:10μsec/div



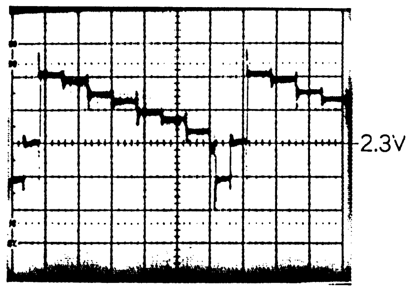
⑤ **TP-12**
V:500mV/div, **H:10μsec/div**



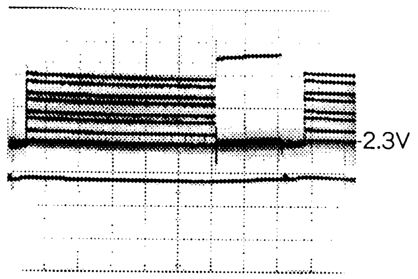
V:500mV/div, **H:2msec/div**



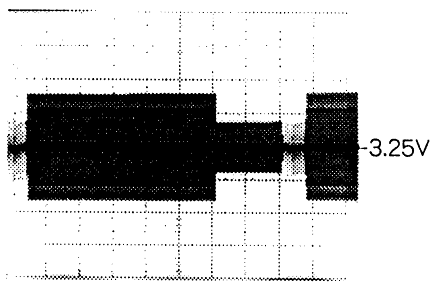
⑥ **TP-05**
V:100mV/div, **H:10μsec/div**



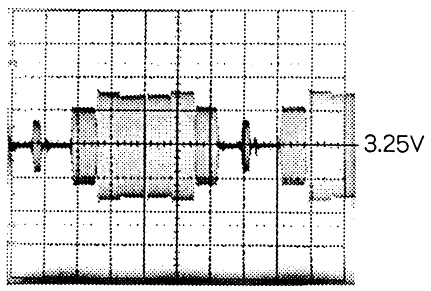
⑥ **TP-05**
V:100mV/div, **H:2msec/div**



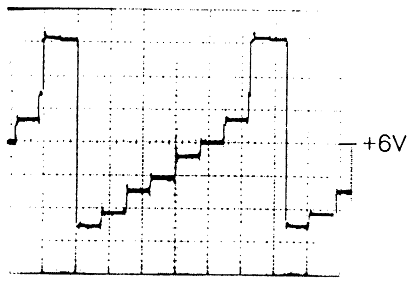
⑦ **TP-41**
V:100mV/div, **H:2msec/div**



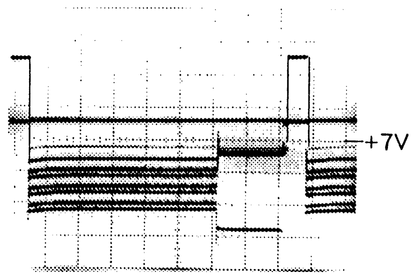
V:100mV/div, **H:10μsec/div**



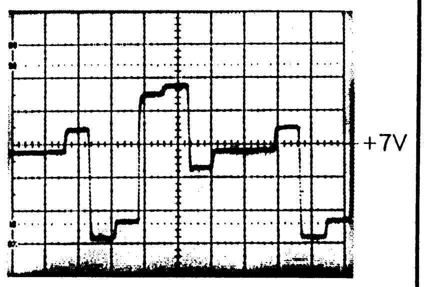
⑧ **TP-13**
V:500mV/div, H:10μsec/div



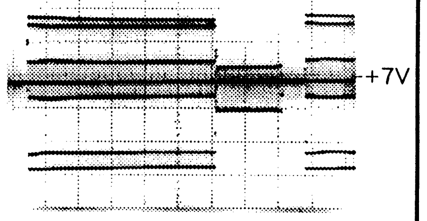
⑧ **TP-13**
V:1V/div, H:2msec/div



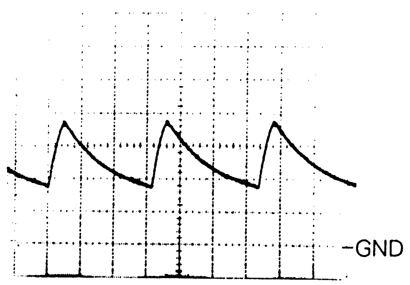
⑨ **TP-46R**
V:1V/div, **H:10μsec/div**



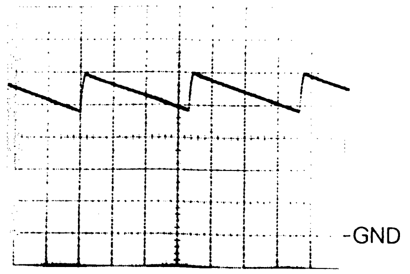
V:1V/div, **H:2msec/div**



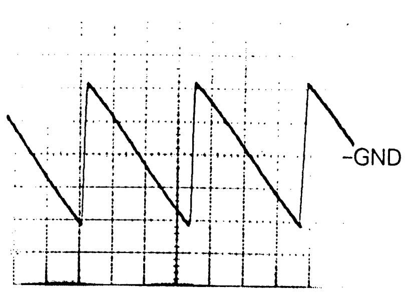
⑩ **IC103 pin 15 for H. GND**
V:1V/div, H:20μsec/div



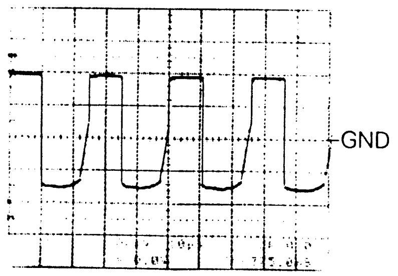
⑪ **IC103 pin 7 for V. GND**
V:1V/div, H:5msec/div



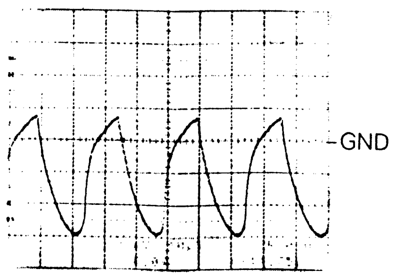
⑫ **C184 of ⊖ side for V. GND**
V:0.5V/div, H:5msec/div



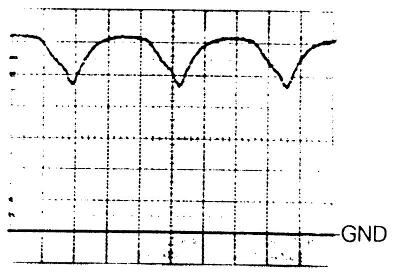
⑬ **D420 Cathode**
V:5V/div, H:10μsec/div



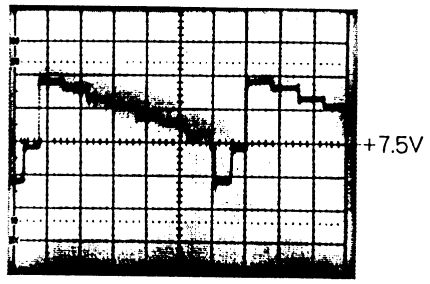
⑭ **D423 Cathode**
V:2V/div, H:10μsec/div



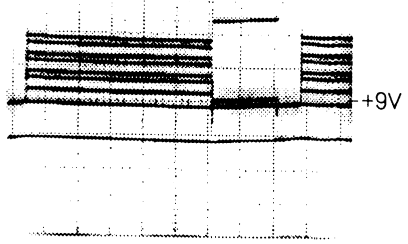
⑮ **Q408 Collector for V.GND**
V:20V/div, H:5msec/div



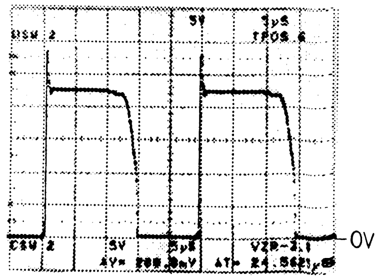
⑯ **TP-01**
V:500mV/div, **H:10μsec/div**



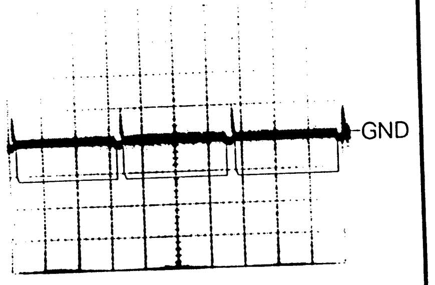
V:500mV/div, **H:2msec/div**



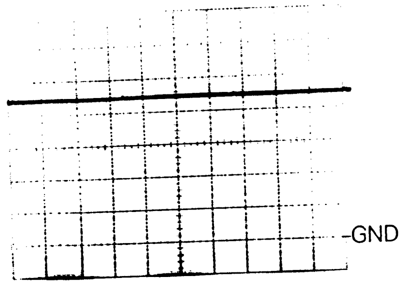
⑰ **Q405 Collector for Emitter**
V:50V/div, H:5μsec/div
(Use the 10:1 probe)



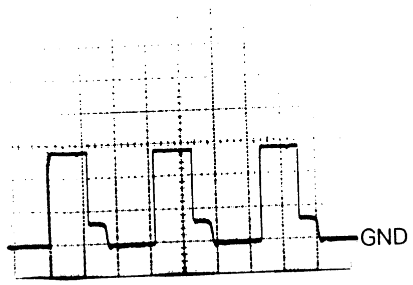
⑱ **IC103 pin 13 (AFC) for H. GND**
**V:50mV/div,** H:5msec/div
AC range



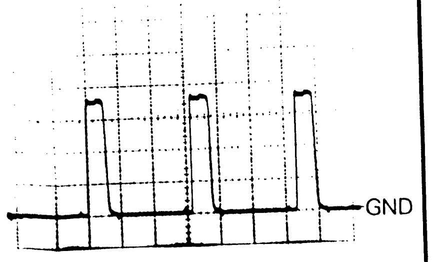
**V:1V/div,** H:5msec/div



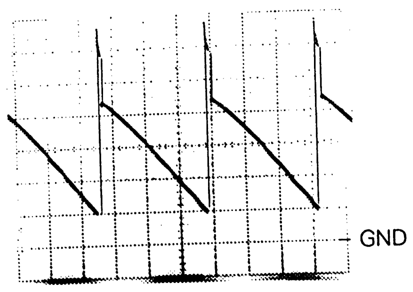
⑲ **IC103 pin 21 (DRIVE) for H. GND**
V:1V/div, H:20μsec/div



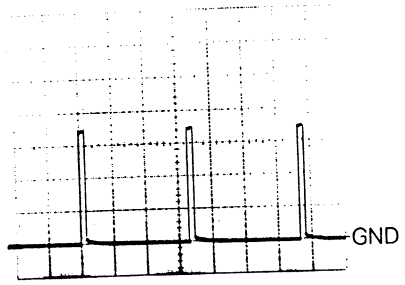
⑳ **IC103 pin 19 for H. GND**
V:0.5V/div, H:20μsec/div



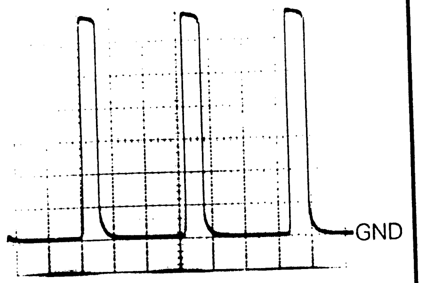
㉑ **Between R637 and R638 (V.OUT) for V.GND**
V:5V/div, H:5msec/div



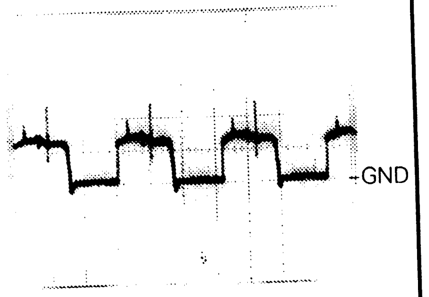
㉒ **TP V. BLK for V. GND**
V:2V/div, H:5msec/div



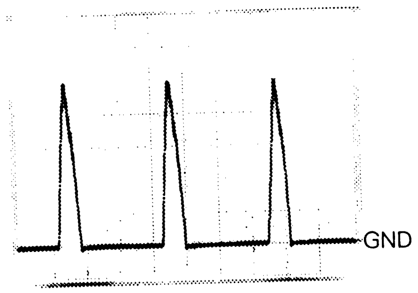
㉓ **TP H. BLK for H. GND**
V:2V/div, H:20μsec/div



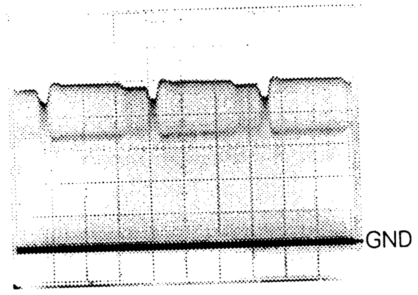
㉔ **R136 (both sides)**
V:0.2V/div, H:20μsec/div



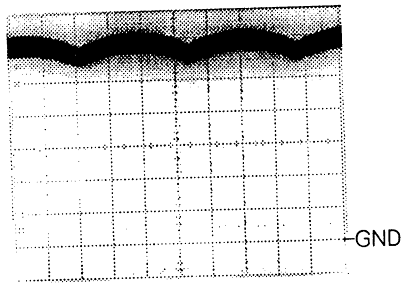
㉕ **C460 (both sides)**
V:200V/div, **H:20μsec/div**



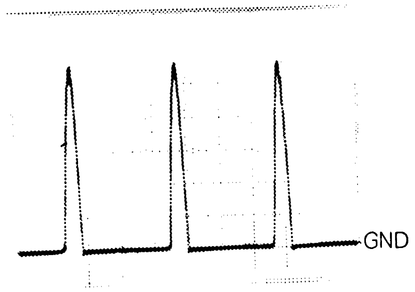
V:200V/div, **H:5msec/div**



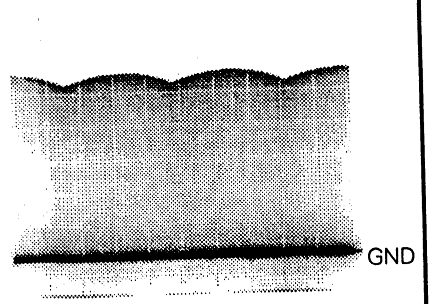
㉖ **D205 Cathode for TP-H. GND**
V:20V/div, H:5msec/div



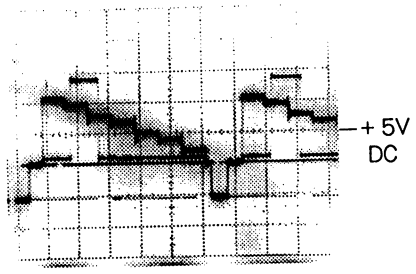
㉗ **Q205 Collector for Emitter**
V:200V/div, H:20μsec/div



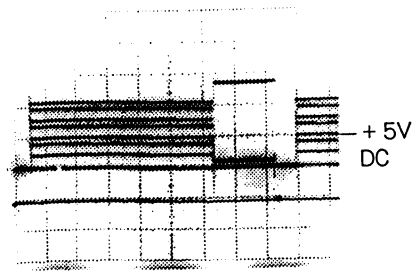
㉗ **Q205 Collector for Emitter**
V:200V/div, H:5msec/div



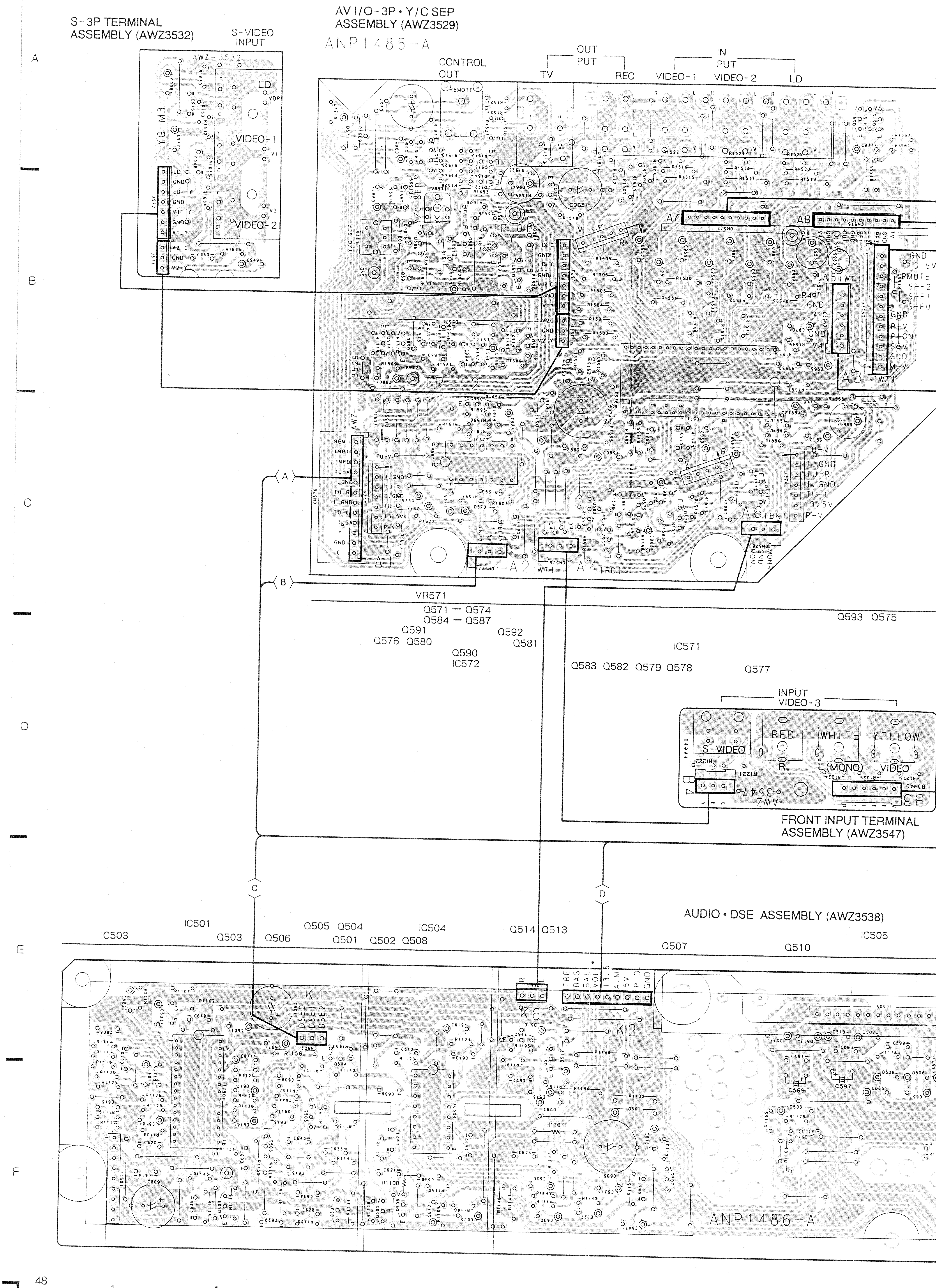
㉘ **TP-01**
V:500mV/div, H:10μsec/div

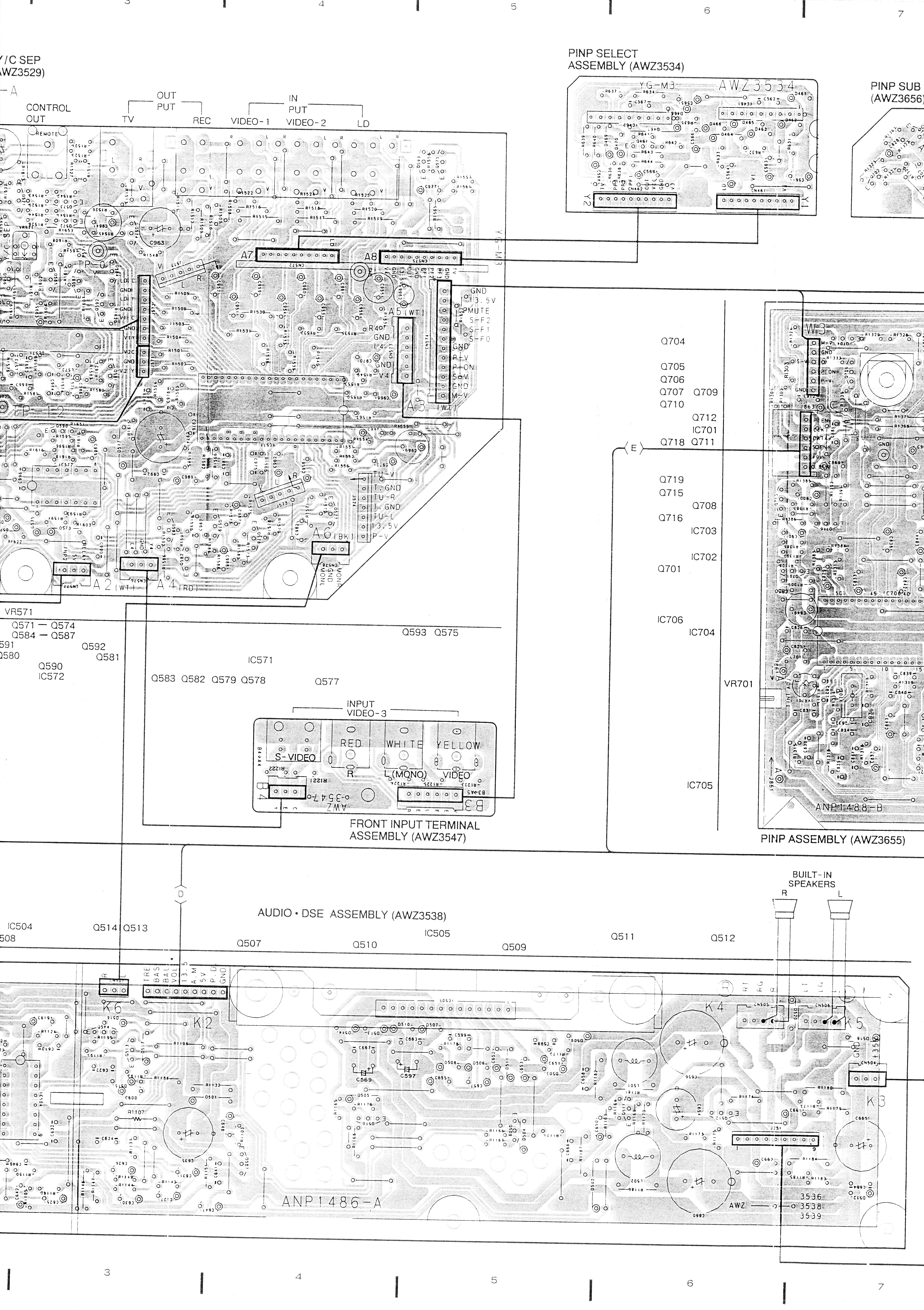


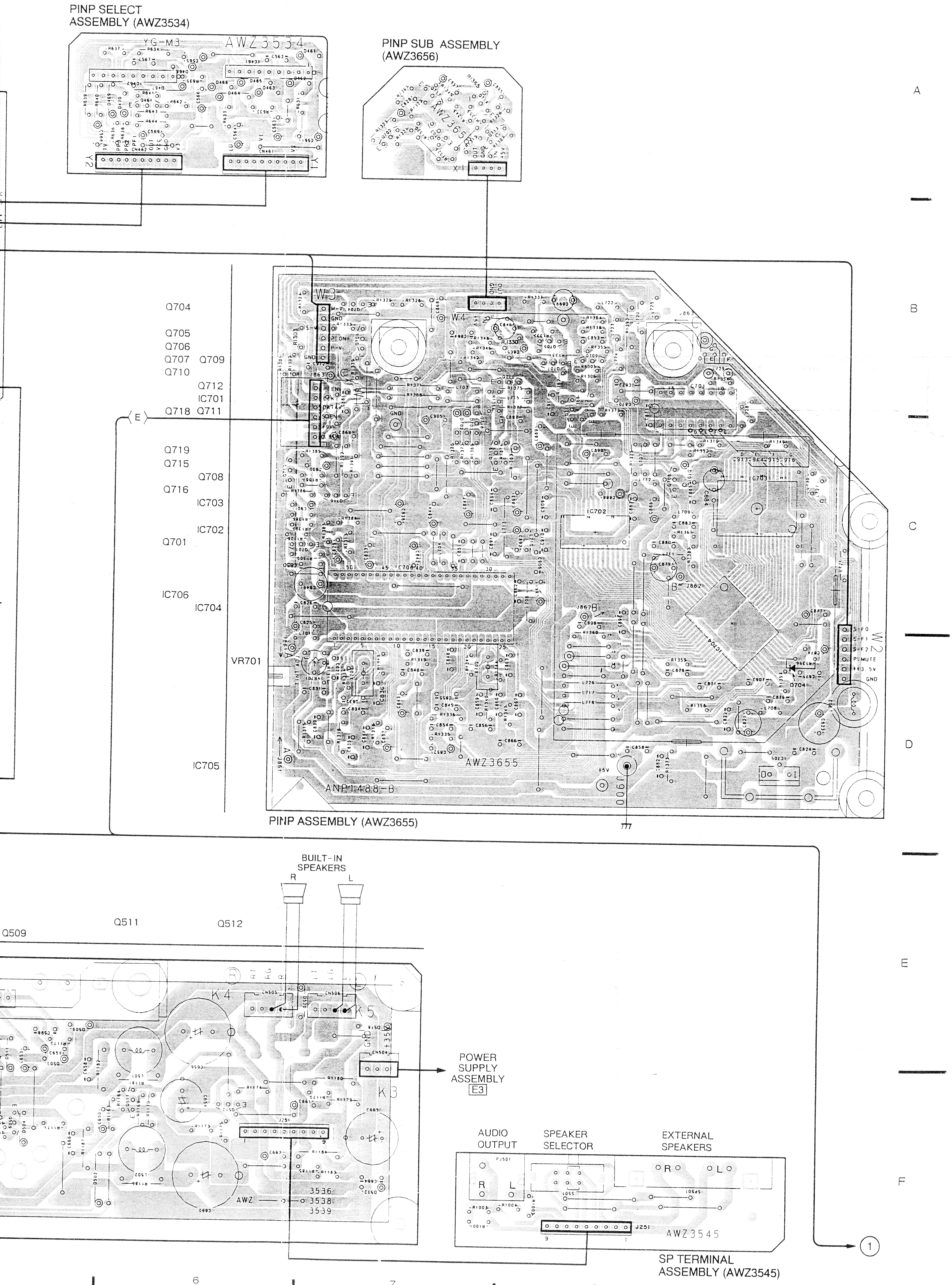
V:500mV/div, H:2msec/div

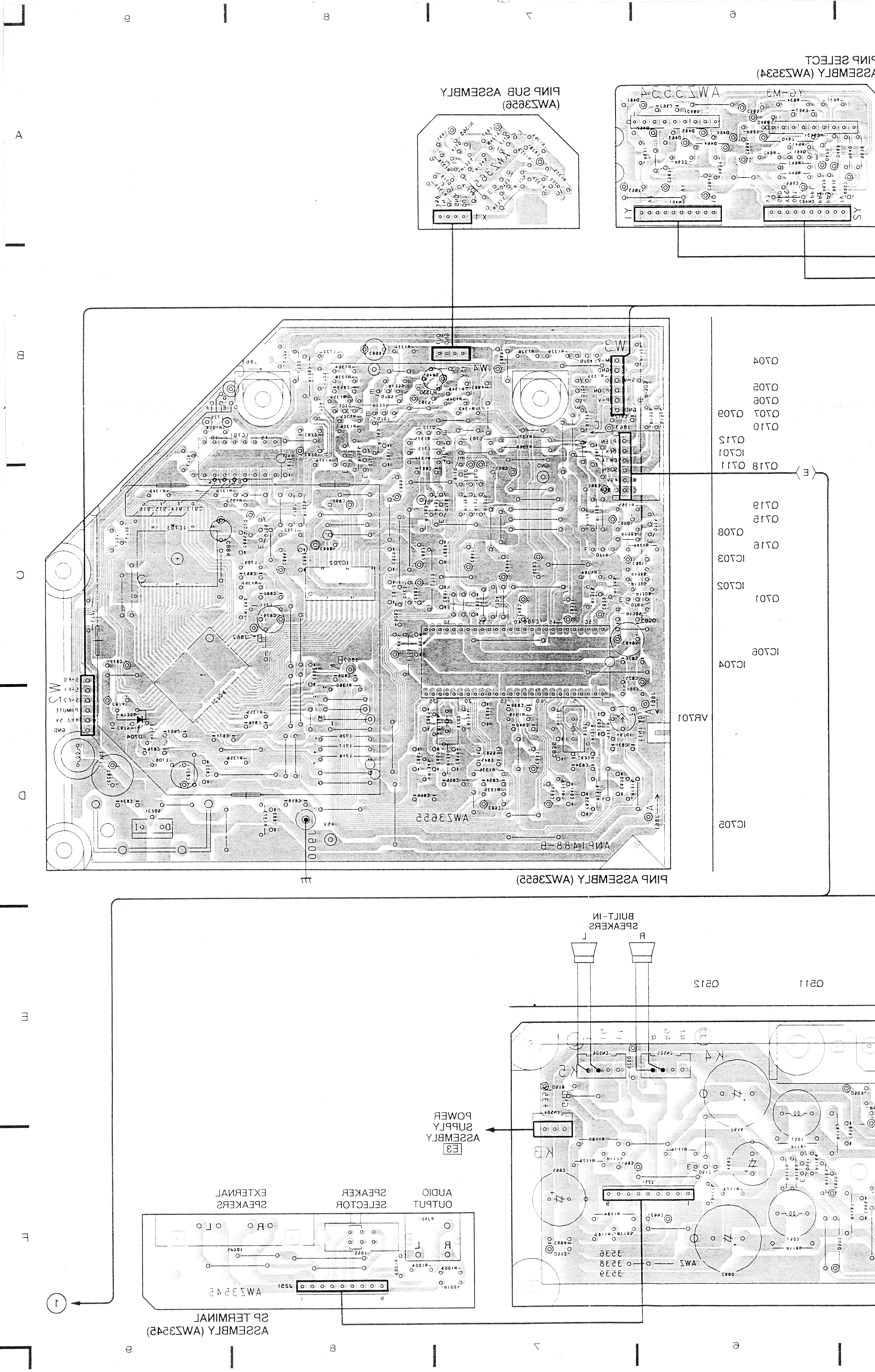


## 7.10 P. C. BOARDS PATTERN


S-3P TERMINAL ASSEMBLY (AWZ3532)
S-VIDEO INPUT
AV I/O-3P • Y/C SEP ASSEMBLY (AWZ3529)
ANP1485-A
CONTROL OUT
OUT PUT
TV
REC
IN PUT
VIDEO-1
VIDEO-2
LD
AWZ-3532
YG-M3
VIDEO-1
VIDEO-2
A7
A8
A5 (WT)
A3 (WT)
A1
A2 (WT)
A4 (RD)
A6 (BK)
GND
13.5V
MUTE
S-F2
S-F1
S-F0
R-V
P-ON
S-V
M-V
TU-V
T. GND
TU-R
TU-L
P-V
REM
INP1
INP0
T. GND
TU-O
A
B
C
D
VR571
Q571 — Q574
Q584 — Q587
Q591
Q576 Q580
Q592
Q581
Q590
IC572
Q593 Q575
IC571
Q583 Q582 Q579 Q578
Q577
INPUT VIDEO-3
S-VIDEO
RED
WHITE
YELLOW
R
L (MONO)
VIDEO
AWZ-3547
B3
B4
FRONT INPUT TERMINAL ASSEMBLY (AWZ3547)
AUDIO • DSE ASSEMBLY (AWZ3538)
IC503
IC501
Q503
Q506
Q505 Q504
Q501
Q502 Q508
IC504
Q514 Q513
Q507
Q510
IC505
K1
K2
K6
DSE0
DSE1
DSE2
TRE
BAS
BAL
VOL
13.5
A. M
5V
P. D
GND
ANP1486-A
A
B
C
D
E
F
1
2
3
4
5

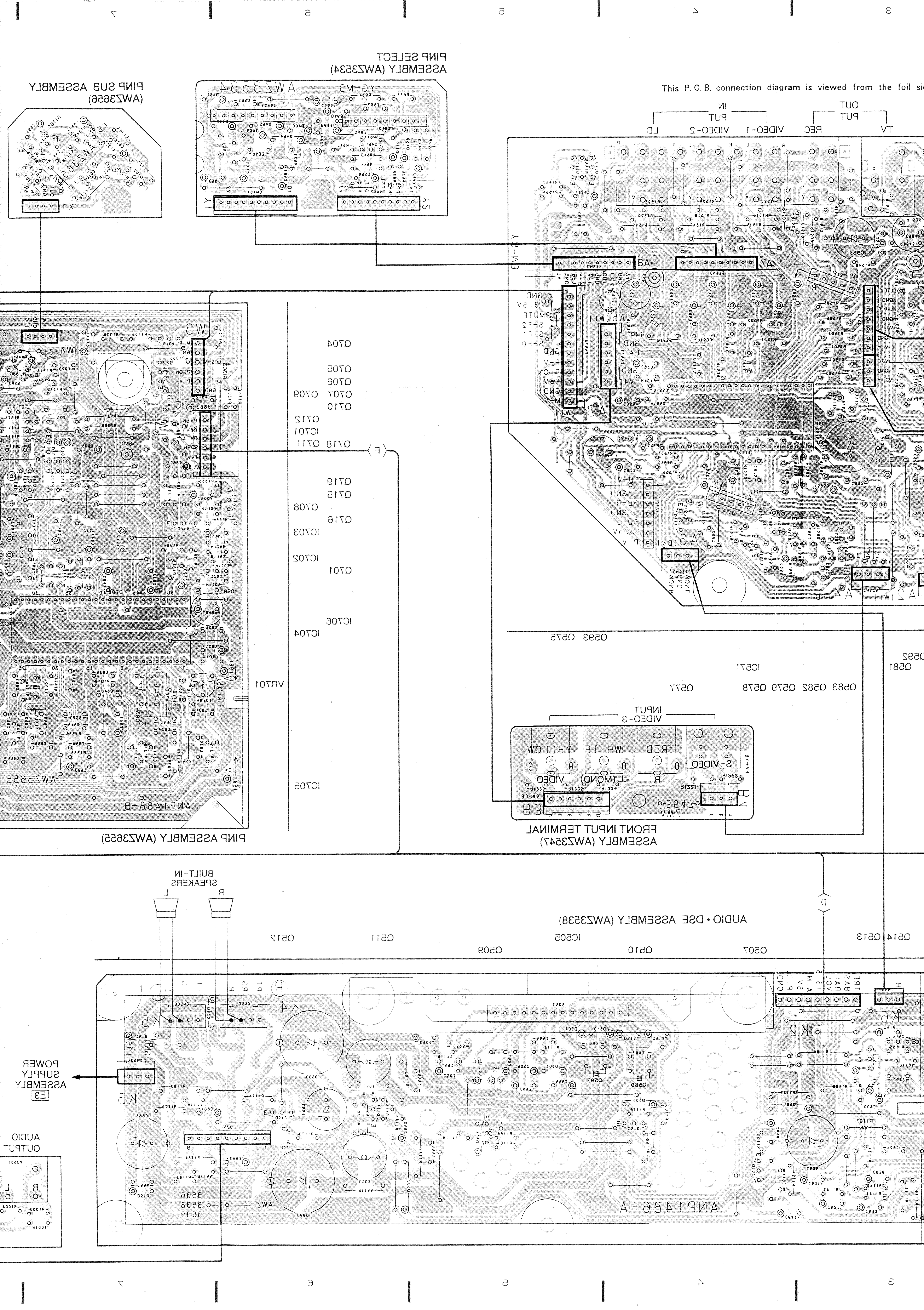

3
4
5
6
7
Y/C SEP
(AWZ3529)
CONTROL OUT
OUT PUT
TV
REC
IN PUT
VIDEO-1
VIDEO-2
LD
PINP SELECT ASSEMBLY (AWZ3534)
AWZ3534
YG-M3
Y2
Y1
PINP SUB
(AWZ3656)
A7
A8
A5 (WT)
A2 (WT)
A4 (RD)
A6 (BK)
GND
13.5V
PMUTE
S-F2
S-F1
S-F0
P+V
P+ON
So-V
GND
M-V
TU-V
T.GND
TU-R
T.GND
TU-L
13.5V
P-V
VR571
Q571 — Q574
Q584 — Q587
591
Q580
Q592
Q581
Q590
IC572
IC571
Q583 Q582 Q579 Q578
Q577
Q593 Q575
Q704
Q705
Q706
Q707 Q709
Q710
Q712
IC701
Q718 Q711
E
Q719
Q715
Q708
Q716
IC703
IC702
Q701
IC706
IC704
VR701
IC705
W3
ANP1488-B
PINP ASSEMBLY (AWZ3655)
INPUT
VIDEO-3
S-VIDEO
RED
WHITE
YELLOW
R
L(MONO)
VIDEO
B4
B3
AWZ 3547
FRONT INPUT TERMINAL ASSEMBLY (AWZ3547)
D
BUILT-IN SPEAKERS
R
L
AUDIO • DSE ASSEMBLY (AWZ3538)
IC504
508
Q514 Q513
Q507
Q510
IC505
Q509
Q511
Q512
K6
K2
K4
K5
K3
TRE
BAS
BAL
VOL
13.5
A.M
5V
P.D
GND
ANP1486-A
AWZ
3536
3538
3539
3
4
5
6
7


5
6
7
8
9
A
B
C
D
E
F
PINP SELECT ASSEMBLY (AWZ3534)
AWZ3534
YG-M3
Y2
Y1
PINP SUB ASSEMBLY (AWZ3656)
AWZ3656
X1
OUT
GND
+5V
Q704
Q705
Q706
Q707
Q709
Q710
Q712
IC701
Q718
Q711
E
Q719
Q715
Q708
Q716
IC703
IC702
Q701
IC706
IC704
VR701
IC705
W3
W4
W2
M-P
GND
S-V
P.ON
P-V
P.EN
CLK
DATA
SO.EN
+9V
G.BON
S-F0
S-F1
S-F2
P.MUTE
+13.5V
GND
IC700
IC702
IC703
IC704
D704
J900
+5V
AWZ3655
ANP1488-B
PINP ASSEMBLY (AWZ3655)
BUILT-IN SPEAKERS
R
L
Q509
Q511
Q512
K4
K5
K3
CN505
CN506
CN504
J251
AWZ
3536
3538
3539
POWER SUPPLY ASSEMBLY
E3
AUDIO OUTPUT
SPEAKER SELECTOR
EXTERNAL SPEAKERS
PJ501
R
L
R
L
SP501
J251
AWZ3545
SP TERMINAL ASSEMBLY (AWZ3545)
①
6
7
8
9


9
8
7
6
A
B
C
D
E
F
PINP SUB ASSEMBLY
(AWZ3656)
PINP SELECT
ASSEMBLY (AWZ3534)
AWZ3534
1Y
2Y
W3
W4
W2
Q704
Q705
Q706
Q707 Q709
Q710
Q712
IC701
Q711 Q718
E
Q719
Q715
Q708
Q716
IC703
IC702
Q701
IC706
IC704
VR701
IC705
IC702
IC701
D704
AWZ3655
ANP1488-B
PINP ASSEMBLY (AWZ3655)
BUILT-IN
SPEAKERS
L
R
Q512
Q511
K4
K5
K3
CN505
CN506
POWER
SUPPLY
ASSEMBLY
E3
AUDIO
OUTPUT
SPEAKER
SELECTOR
EXTERNAL
SPEAKERS
R
L
J251
AWZ3545
SP TERMINAL
ASSEMBLY (AWZ3545)
AWZ
3536
3538
3539
1

Pioneer 3319

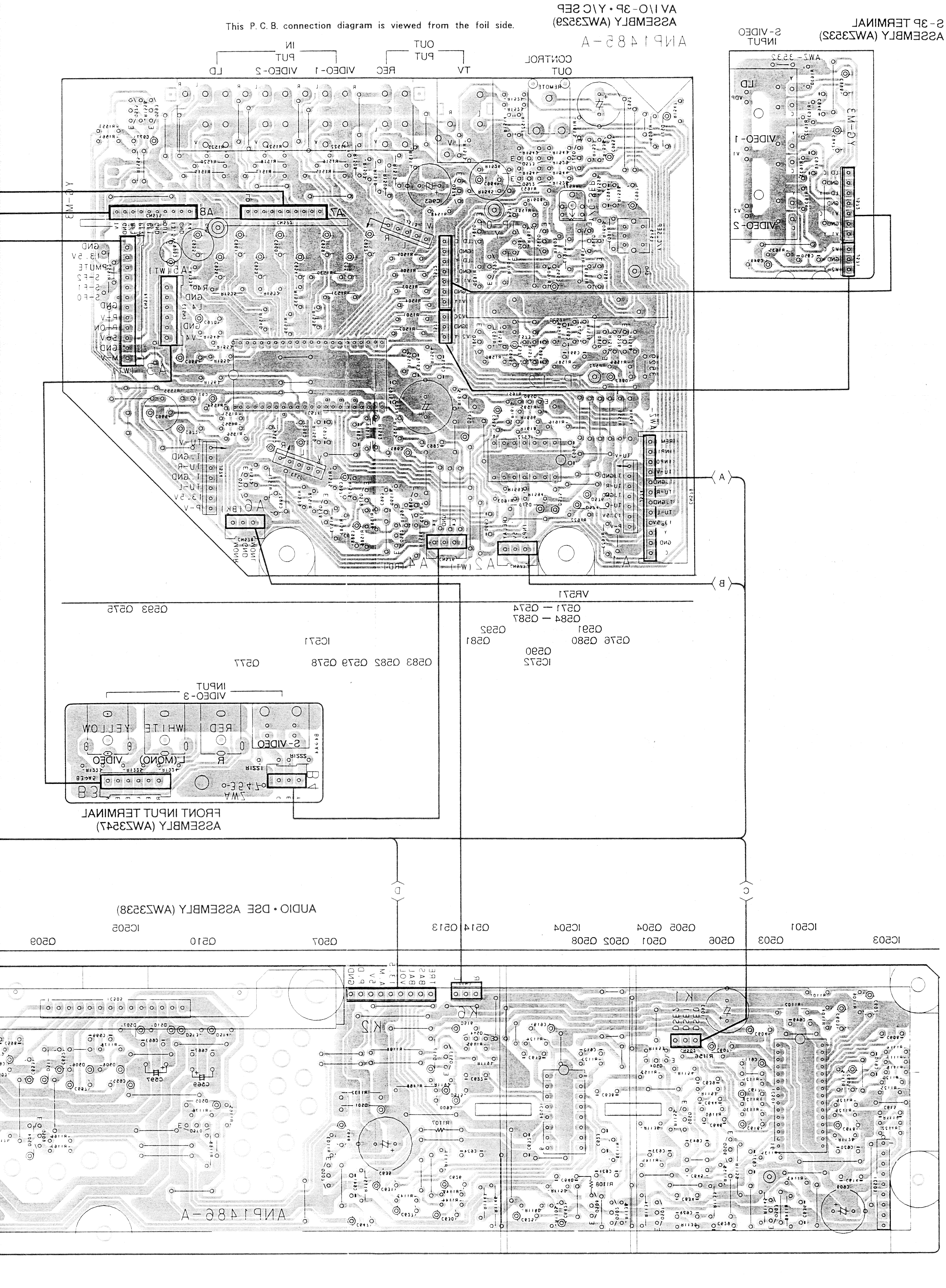
This P. C. B. connection diagram is viewed from the foil si



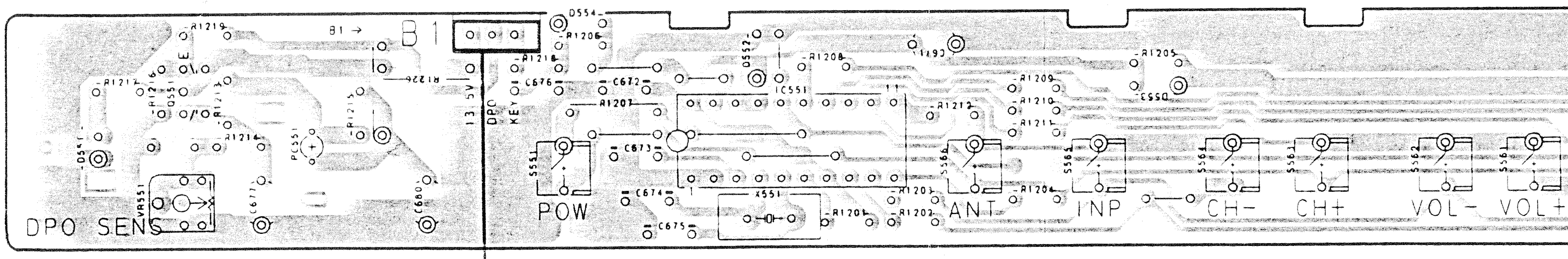
7
6
5
4
3
PINP SUB ASSEMBLY (AWZ3656)
PINP SELECT ASSEMBLY (AWZ3534)
IN PUT
OUT PUT
LD
VIDEO-2
VIDEO-1
REC
TV
A7
A8
A6
A4
A2
W3
W4
PINP ASSEMBLY (AWZ3655)
AWZ3655
ANP1488-B
Q704
Q705
Q706
Q707
Q709
Q710
Q712
IC701
Q718
Q711
E
Q719
Q715
Q708
Q716
IC703
IC702
Q701
IC706
IC704
VR701
IC705
Q593
Q575
IC571
Q577
Q583
Q582
Q579
Q578
Q592
Q581
INPUT VIDEO-3
YELLOW
WHITE
RED
S-VIDEO
VIDEO
L (MONO)
R
B3
B4
FRONT INPUT TERMINAL ASSEMBLY (AWZ3547)
BUILT-IN SPEAKERS
L
R
D
AUDIO • DSE ASSEMBLY (AWZ3538)
Q512
Q511
IC505
Q509
Q510
Q507
Q514
Q513
K5
K4
K3
K2
K6
POWER SUPPLY ASSEMBLY
E3
AUDIO OUTPUT
L
R
3536
3538
3539
AWZ
ANP1486-A

## 7.10 P. C. BOARDS PATTERN

This P.C.B. connection diagram is viewed from the foil side.


S-3P TERMINAL
ASSEMBLY (AWZ3532)
S-VIDEO
INPUT
AV I/O-3P・Y/C SEP
ASSEMBLY (AWZ3529)
ANP1485-A
CONTROL
OUT
TV
REC
OUT
PUT
VIDEO-1
VIDEO-2
IN
PUT
LD
VIDEO-1
VIDEO-2
A8
A7
A
B
VR571
Q571 — Q574
Q584 — Q587
Q591
Q592
Q576 Q580
Q581
Q590
IC572
IC571
Q583 Q582 Q579 Q578
Q577
Q593 Q575
INPUT
VIDEO-3
YELLOW
WHITE
RED
S-VIDEO
VIDEO
L(MONO)
R
FRONT INPUT TERMINAL
ASSEMBLY (AWZ3547)
D
C
AUDIO・DSE ASSEMBLY (AWZ3538)
IC501
IC503
Q503
Q506
Q505 Q504
Q501
Q502 Q508
IC504
Q514 Q513
Q507
Q510
IC505
Q509
ANP1486-A

FRONT CONTROL ASSEMBLY (AWZ3540)


DPO SENS
B1
13.5V
KEY
POW
ANT
INP
CH-
CH+
VOL-
VOL+

Q158 Q167 Q164

Q101 IC101 Q152 — Q155 Q157 Q165 Q163

Q151 Q147 Q148 Q166 Q162 Q156 Q159 — Q161 Q172 Q319 Q309

Q143 Q149 Q150 Q173 Q168 — Q171 Q316 Q306

Q119 Q140 Q117 Q115 Q137 Q138 IC301 Q336 Q103 Q317 Q307

IC252 Q255 Q256 Q114 Q111 Q107 IC302 Q314 Q102 Q144 Q315 Q318 Q308

Q266 Q268 Q269 Q260 — Q264 Q267 Q329 — Q332 Q340 IC303

Q259 Q265 IC251 Q337 Q341 Q333 Q334 Q301 — Q305

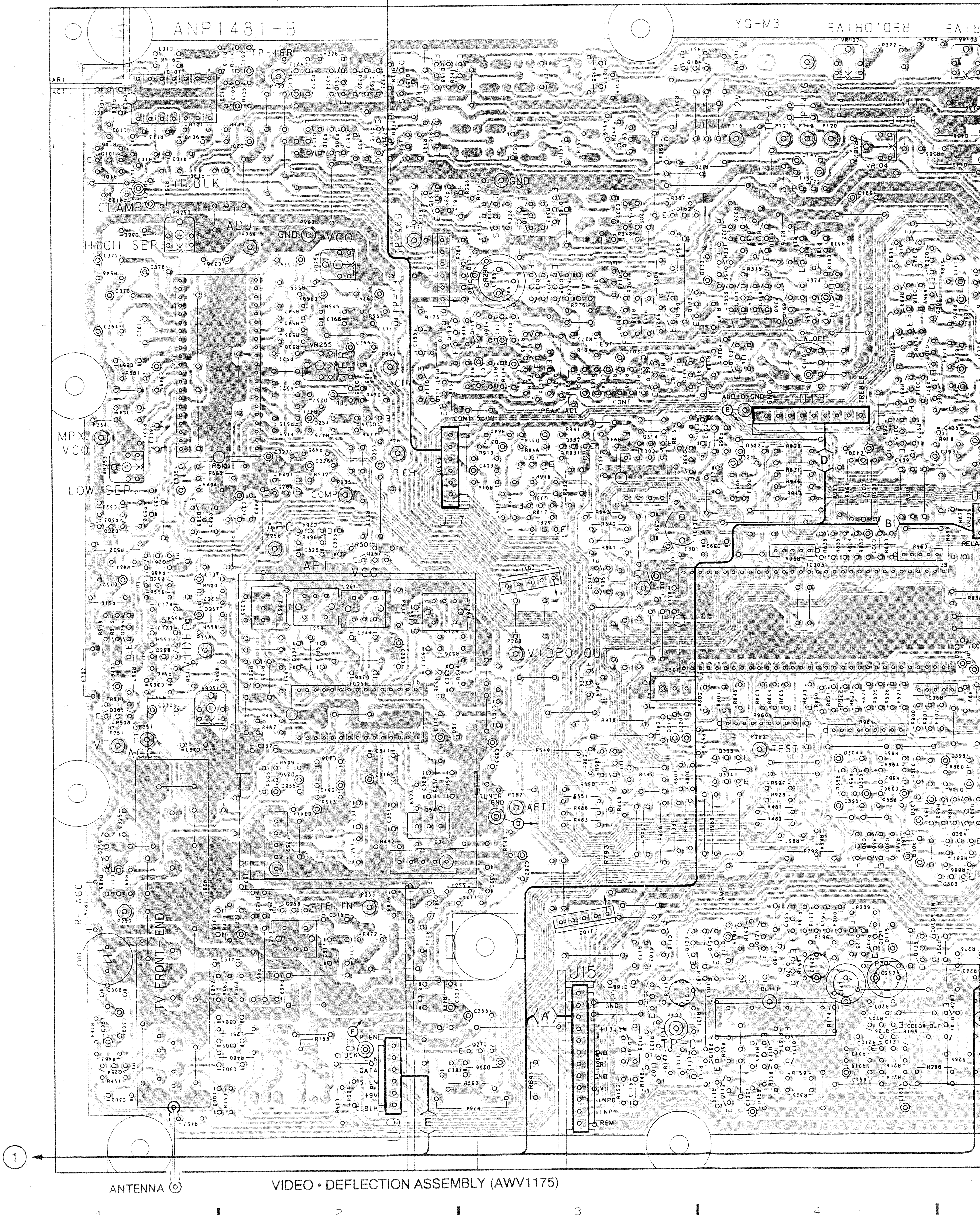
Q258 Q257 Q106 Q118 Q120 — Q125 Q127 Q139

Q254 Q270 Q104 Q108 Q112 Q113 Q174 Q128 Q131 Q141

VR252 VR254 VR102 VR104 VR10

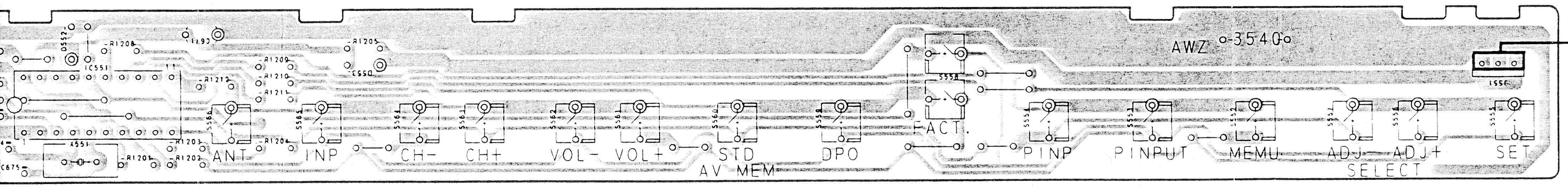
VR253 VR255 TC431

VR251


ANP1481-B
YG-M3
RED.DRIVE
TP-46R
H.BLK
CLAMP
HIGH SEP.
P.I.F. ADJ.
GND
VCO
MPX. VCO
LOW SEP.
APC
AFT
VCO
VIDEO
VIDEO OUT
VTO IF AGC
RF.AGC
TV FRONT-END
IF IN
U17
U15
U13
TREBLE
AUDIO GND
PEAK ACL
CONT
TEST
LCH
RCH
COMP
TUNER GND
AFT
GND
+13.5V
INP0
INP1
REM
P.EN
C.BLK
DATA
S.EN
+9V
BLK
COLOR OUT
A
B
D
E
F
1
ANTENNA

VIDEO • DEFLECTION ASSEMBLY (AWV1175)

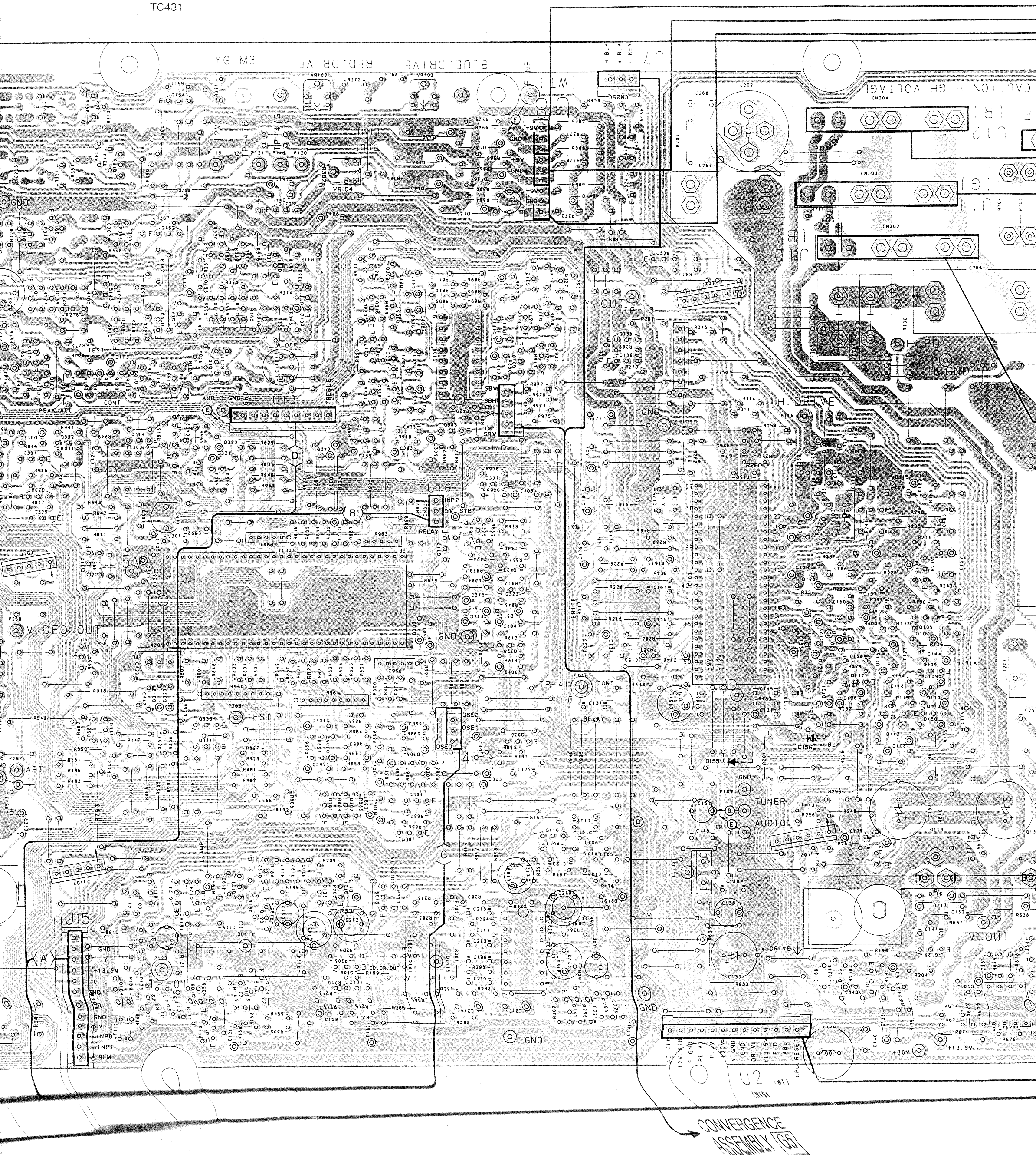
3 4 5 6 7

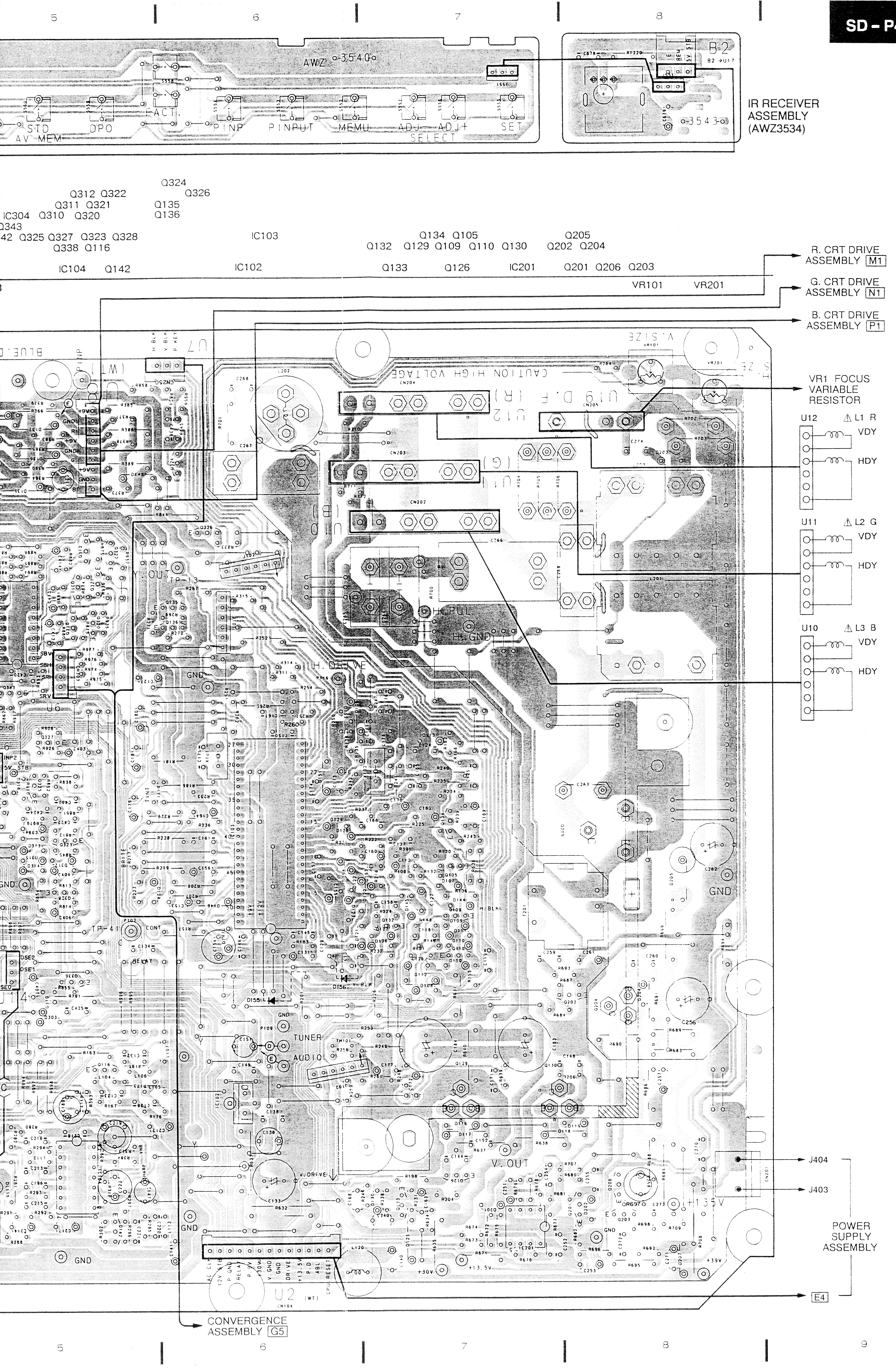

AWZ-3540
ANT
INP
CH-
CH+
VOL-
VOL+
STD
AV MEM
DPO
FACT.
PINP
PINPUT
MEMU
ADJ-
ADJ+
SELECT
SET

Q164
Q163 Q324
47 Q148 Q166 Q162 Q156 Q159 — Q161 Q172 Q319 Q309 Q312 Q322 Q326
Q143 Q149 Q150 Q173 Q168 — Q171 Q316 Q306 Q311 Q321 Q135
Q117 Q115 Q137 Q138 IC301 Q336 Q103 Q317 Q307 IC304 Q310 Q320 Q136
Q107 IC302 Q314 Q102 Q144 Q315 Q318 Q308 Q343
329 — Q332 Q340 IC303 Q342 Q325 Q327 Q323 Q328 IC103 Q134 Q105
Q337 Q341 Q333 Q334 Q301 — Q305 Q338 Q116 Q132 Q129 Q109 Q110 Q130
Q106 Q118 Q120 — Q125 Q127 Q139
Q104 Q108 Q112 Q113 Q174 Q128 Q131 Q141 IC104 Q142 IC102 Q133 Q126 IC201

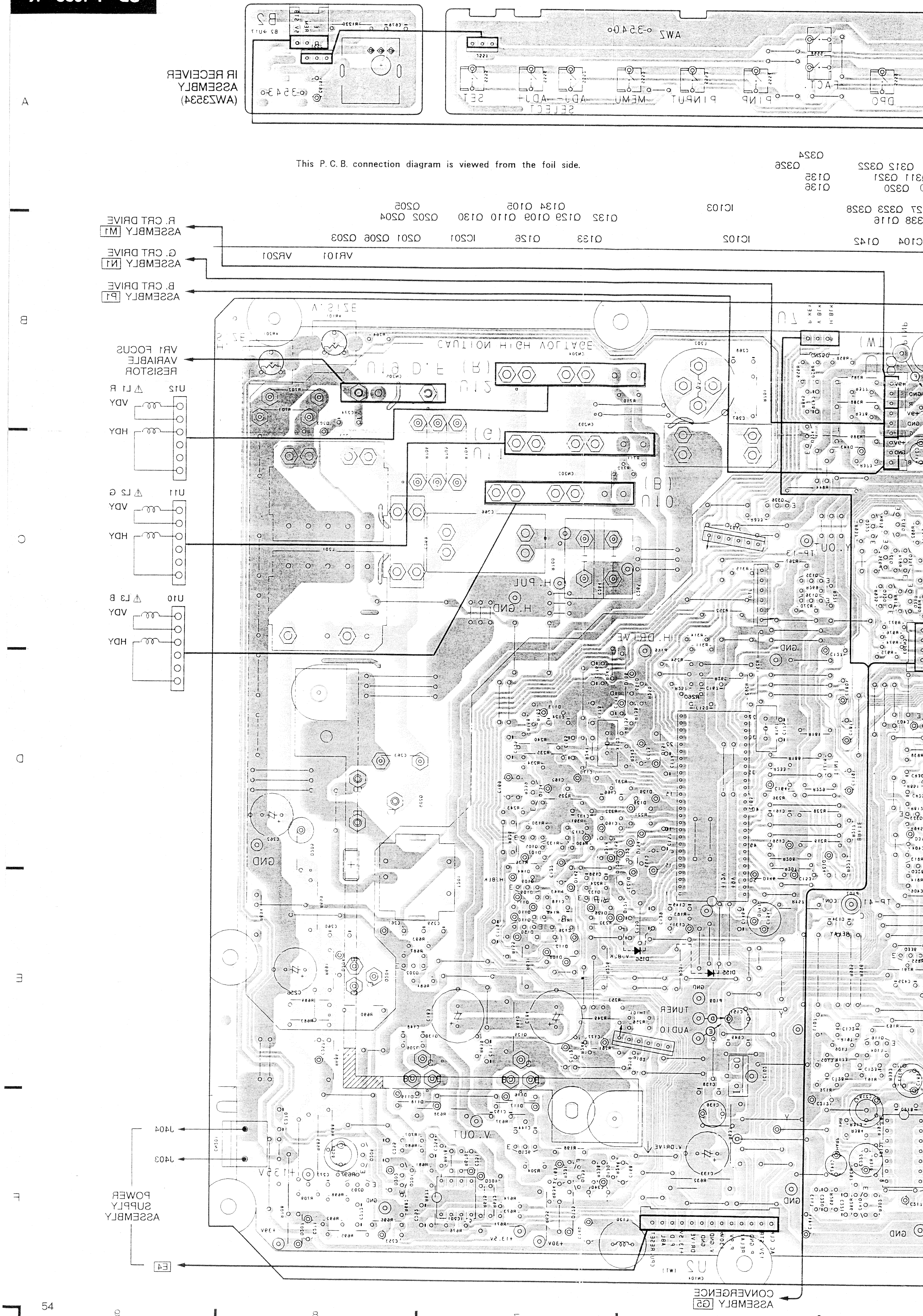
VR102 VR104 VR103

TC431

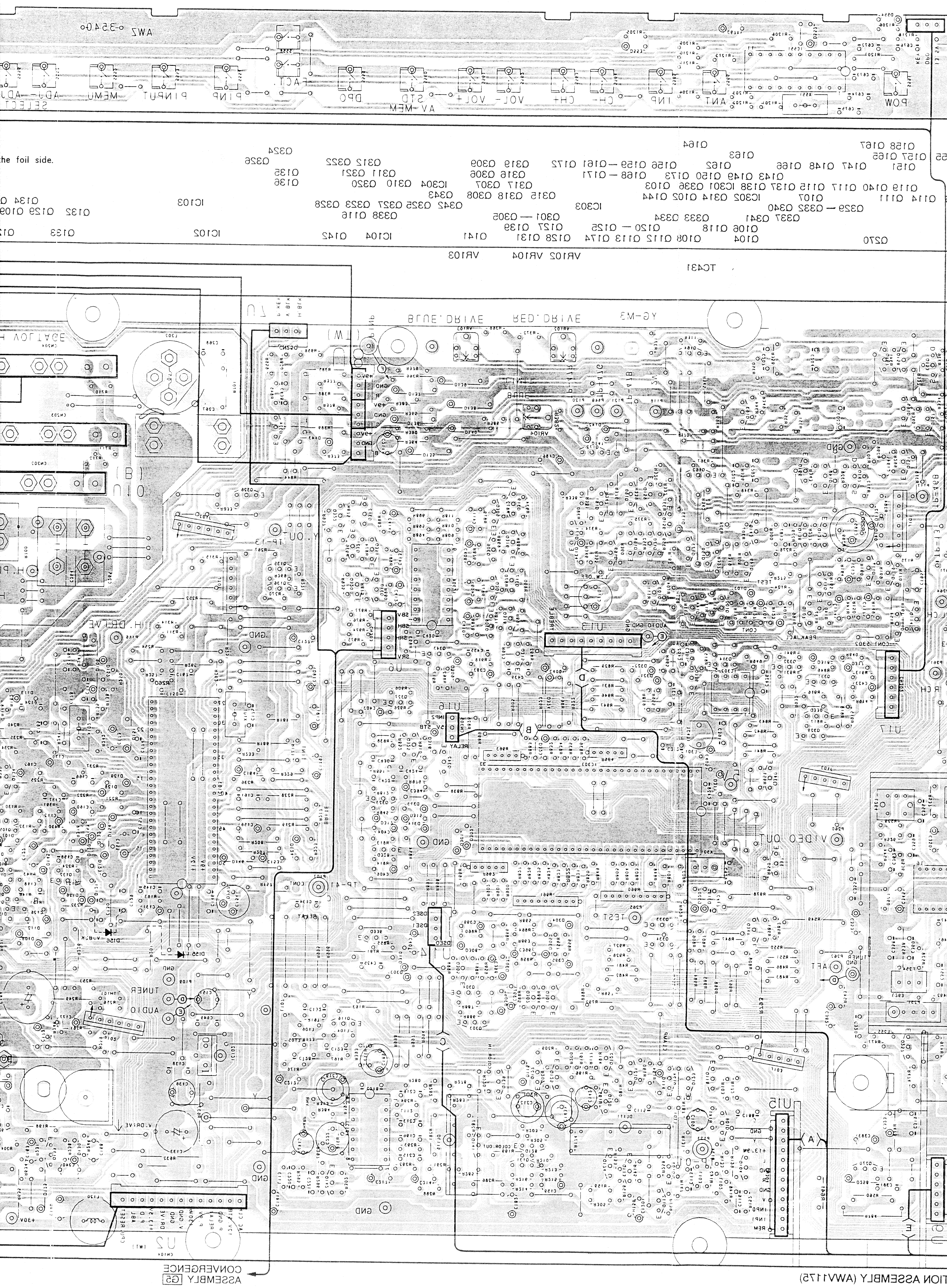

YG-M3
RED.DRIVE
BLUE.DRIVE
P INP
(WT)
U7
H.BLK
V.BLK
P.KEY
CAUTION HIGH VOLTAGE
(R)
U12
(G)
U11
(B)
U10
VR104
W.OFF
TREBLE
U13
AUDIO GND
PEAK.ACL
CONT
TEST
Y.OUT
TP-13
H.PUL
H.GND
H.DRIVE
GND
U6
SBV
SBH
SRH
SRV
U16
INP2
5V
STB
RELAY
IC303
VIDEO OUT
GND
TP-41
CONT
BRITE
TINT
TEST
AFT
DSE2
DSE1
DSE0
U4
D155
D156
V.BLK
TUNER
AUDIO
GND
CLAMP
COLOR.OUT
V.DRIVE
V.OUT
H.BLK
U15
(A)
+13.5V
GND
INP0
INP1
REM
GND
U2
+30V
+13.5V
CONVERGENCE
ASSEMBLY (G5)


5
6
7
8
AWZ 3540
STD
DPO
AV MEM
ACT
PINP
PINPUT
MEMU
ADJ-
ADJ+
SET
SELECT
B2
B2 → U17
3543
IR RECEIVER ASSEMBLY (AWZ3534)
Q324
Q312 Q322 Q326
Q311 Q321 Q135
IC304 Q310 Q320 Q136
Q343
42 Q325 Q327 Q323 Q328
Q338 Q116
IC103
IC104 Q142
IC102
Q134 Q105
Q132 Q129 Q109 Q110 Q130
Q133 Q126
IC201
Q205
Q202 Q204
Q201 Q206 Q203
VR101 VR201
R. CRT DRIVE ASSEMBLY M1
G. CRT DRIVE ASSEMBLY N1
B. CRT DRIVE ASSEMBLY P1
VR1 FOCUS VARIABLE RESISTOR
U12
⚠L1 R
VDY
HDY
U11
⚠L2 G
VDY
HDY
U10
⚠L3 B
VDY
HDY
V.SIZE
H.SIZE
CAUTION HIGH VOLTAGE
U19 D.F (R)
U12
(G)
U11
(B)
U10
U7
(WT)
Y.OUT
TP-13
H.PUL
H.GND
H.DRIVE
GND
U6
TP-41
U14
TUNER
AUDIO
V.DRIVE
V.OUT
GND
U2
J404
J403
+135V
+39V
+30V
+13.5V
POWER SUPPLY ASSEMBLY
E4
CONVERGENCE ASSEMBLY G5
5
6
7
8
9

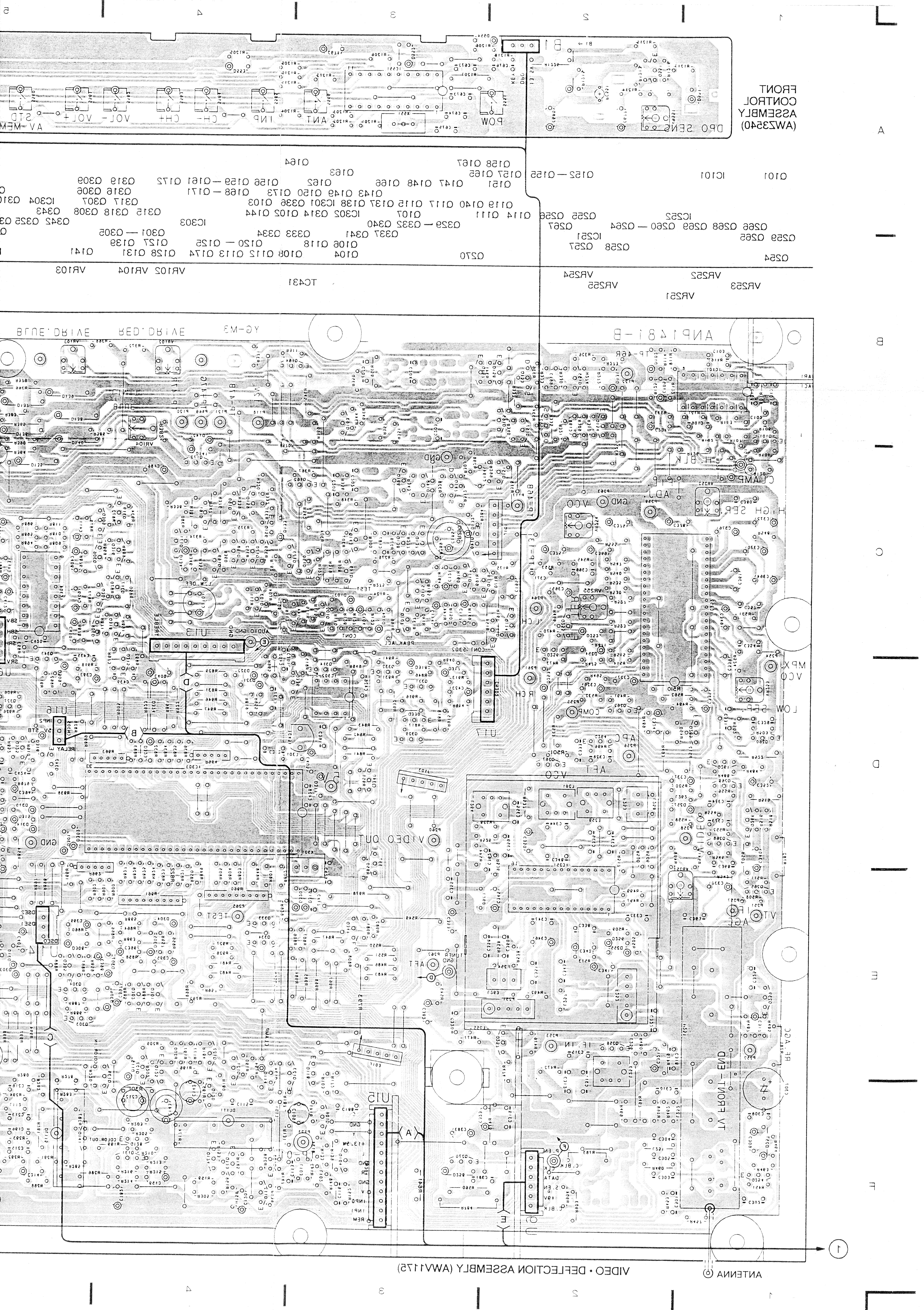
This P.C.B. connection diagram is viewed from the foil side.

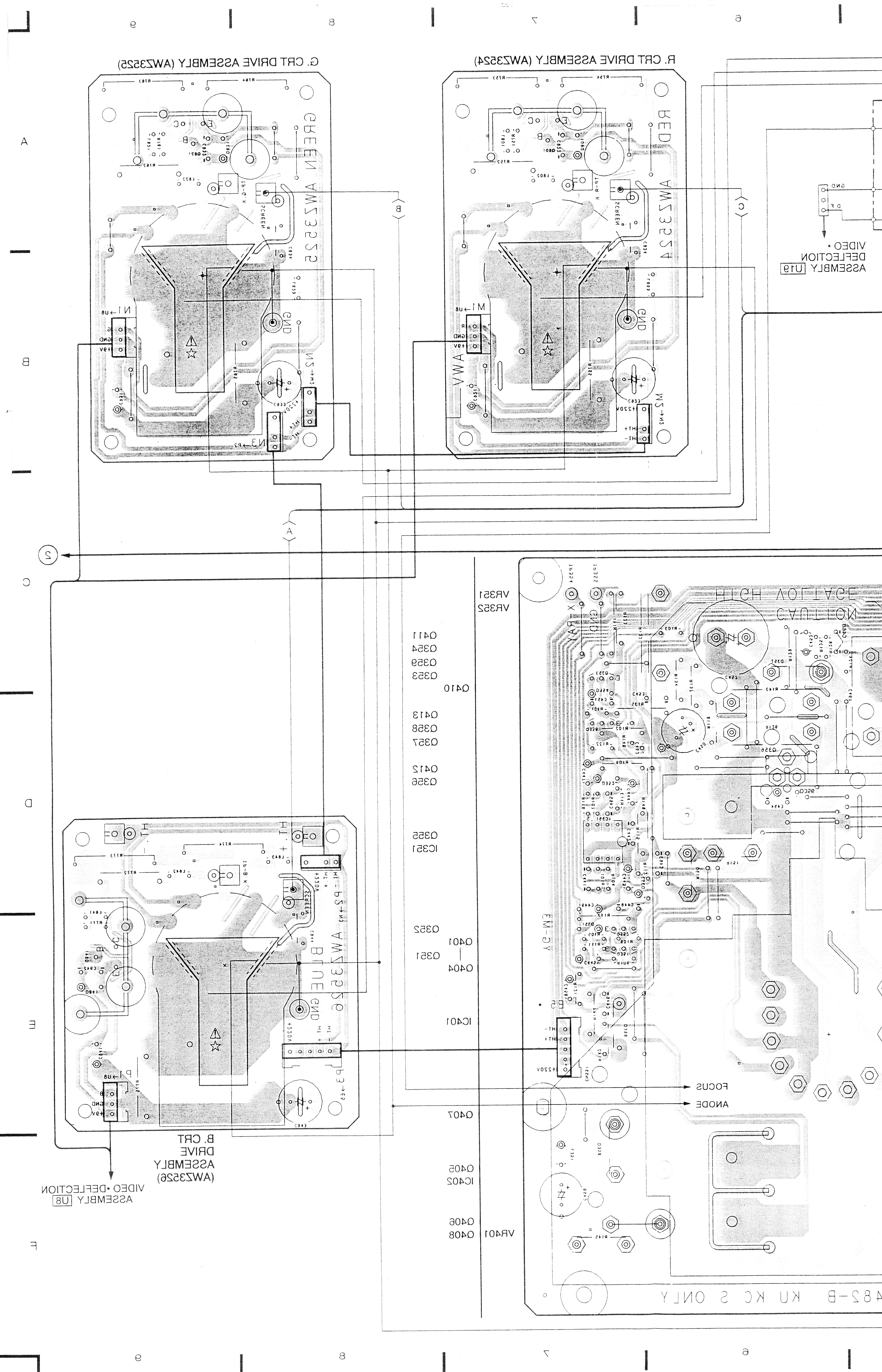

IR RECEIVER ASSEMBLY (AWZ3534)
B2
AWZ
R. CRT DRIVE ASSEMBLY M1
G. CRT DRIVE ASSEMBLY N1
B. CRT DRIVE ASSEMBLY P1
VR1 FOCUS VARIABLE RESISTOR
U12 L1 R
U11 L2 G
U10 L3 B
VDY
HDY
CAUTION HIGH VOLTAGE
J404
J403
POWER SUPPLY ASSEMBLY
E4
CONVERGENCE ASSEMBLY G5
TUNER AUDIO
GND
A
B
C
D
E
F
9
8
7
6

the foil side.

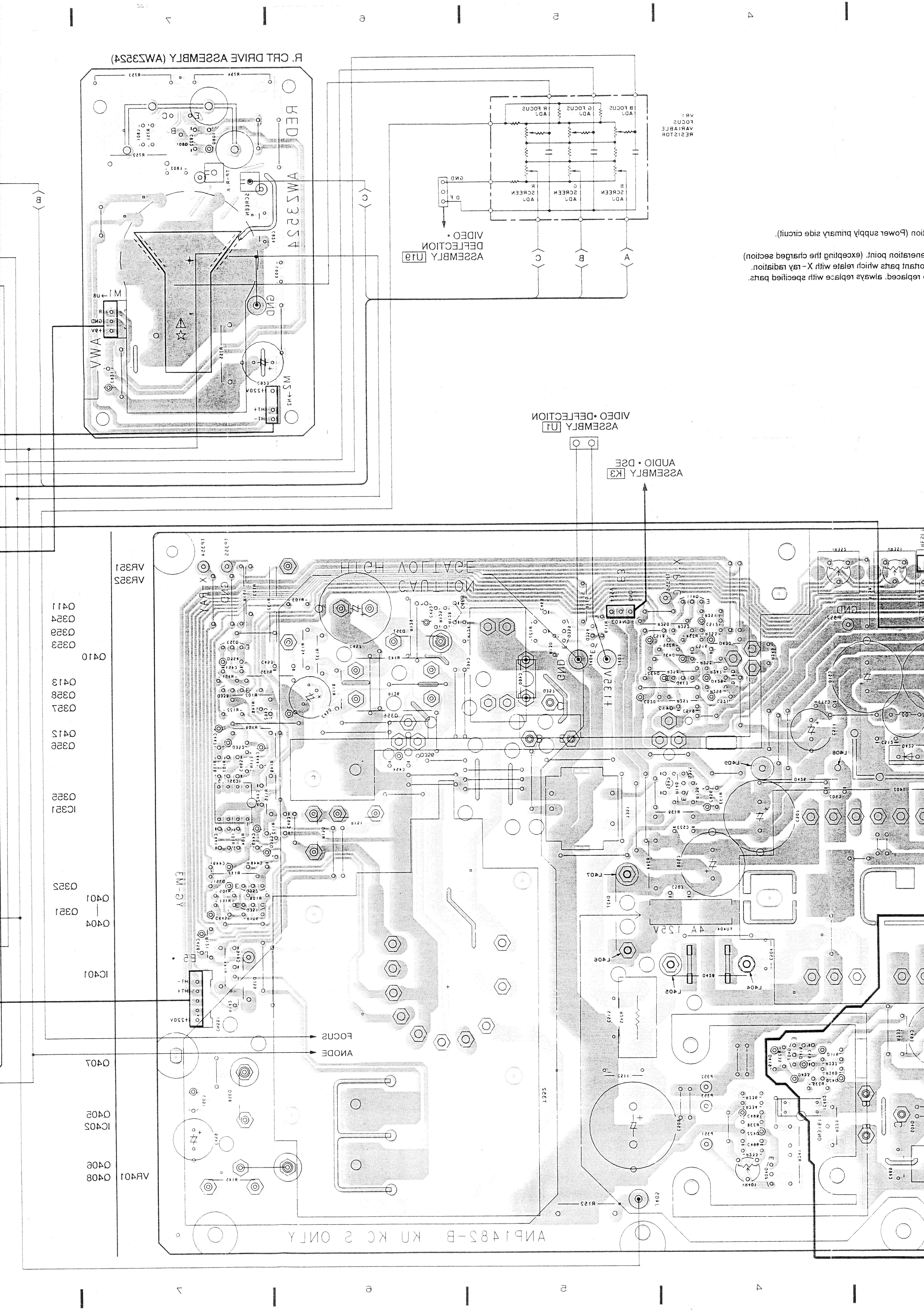


POW
ANT
INP
CH-
CH+
VOL-
VOL+
STD
AV MEM
DPO
FACT
PINP
PINPUT
MEMU
ADJ
SELECT
AWZ
Q158 Q167
Q157 Q165
Q151
Q147 Q148 Q166
Q164
Q163
Q162
Q156 Q159 — Q161 Q172
Q143 Q149 Q150 Q173
Q168 — Q171
Q119 Q140 Q117 Q115 Q137 Q138 IC301 Q336 Q103
Q114 Q111
Q107
IC302 Q314 Q102 Q144
Q329 — Q332 Q340
Q337 Q341
Q333 Q334
Q106 Q118
Q104
Q108 Q112 Q113 Q174
Q120 — Q125
Q128 Q131
Q127 Q139
Q301 — Q305
Q141
Q270
IC303
Q319 Q309
Q316 Q306
Q317 Q307
Q315 Q318 Q308
Q343
Q342 Q325 Q327 Q323 Q328
Q338 Q116
IC304 Q310 Q320
Q311 Q321
Q312 Q322
Q324
Q326
Q135
Q136
IC103
IC102
IC104
Q142
Q134
Q132 Q129 Q109
Q133
VR102 VR104
VR103
TC431
YG-M3
RED DRIVE
BLUE DRIVE
U7
U10
U13
U6
U16
U2
U15
U1
H.DRIVE
V.DRIVE
TUNER
AUDIO
VIDEO OUT
TEST
AFT
GND
TP-41
TP-13
Y.OUT
CONT
PEAK.ACL
TREBLE
RELAY
STB
INP2
INP1
INPO
REM
CONVERGENCE ASSEMBLY G5
TION ASSEMBLY (AWV1175)
6
5
4
3


FRONT CONTROL ASSEMBLY (AWZ3540)
VIDEO • DEFLECTION ASSEMBLY (AWV1175)
ANTENNA
ANP1481-B
Q101
IC101
Q158 Q167
Q157 Q165
Q152—Q155
Q151
Q164
Q163
Q147 Q148 Q166
Q162
Q156 Q159—Q161 Q172
Q143 Q149 Q150 Q173
Q168—Q171
Q119 Q140 Q117 Q115 Q137 Q138 IC301 Q336 Q103
Q114 Q111
Q107
IC302 Q314 Q102 Q144
Q329—Q332 Q340
Q337 Q341
Q333 Q334
Q106 Q118
Q104
Q108 Q112 Q113 Q174
Q120—Q125
Q270
Q319 Q309
Q316 Q306
Q317 Q307
IC304
Q315 Q318 Q308
Q343
Q342 Q325
IC303
Q301—Q305
Q127 Q139
Q128 Q131
Q141
Q255 Q256
IC252
Q266 Q268 Q269 Q260—Q264
Q267
Q259 Q265
IC251
Q258 Q257
Q254
VR103
VR102 VR104
TC431
VR254
VR255
VR252
VR253
VR251
A
B
C
D
E
F
1
2
3
4
5



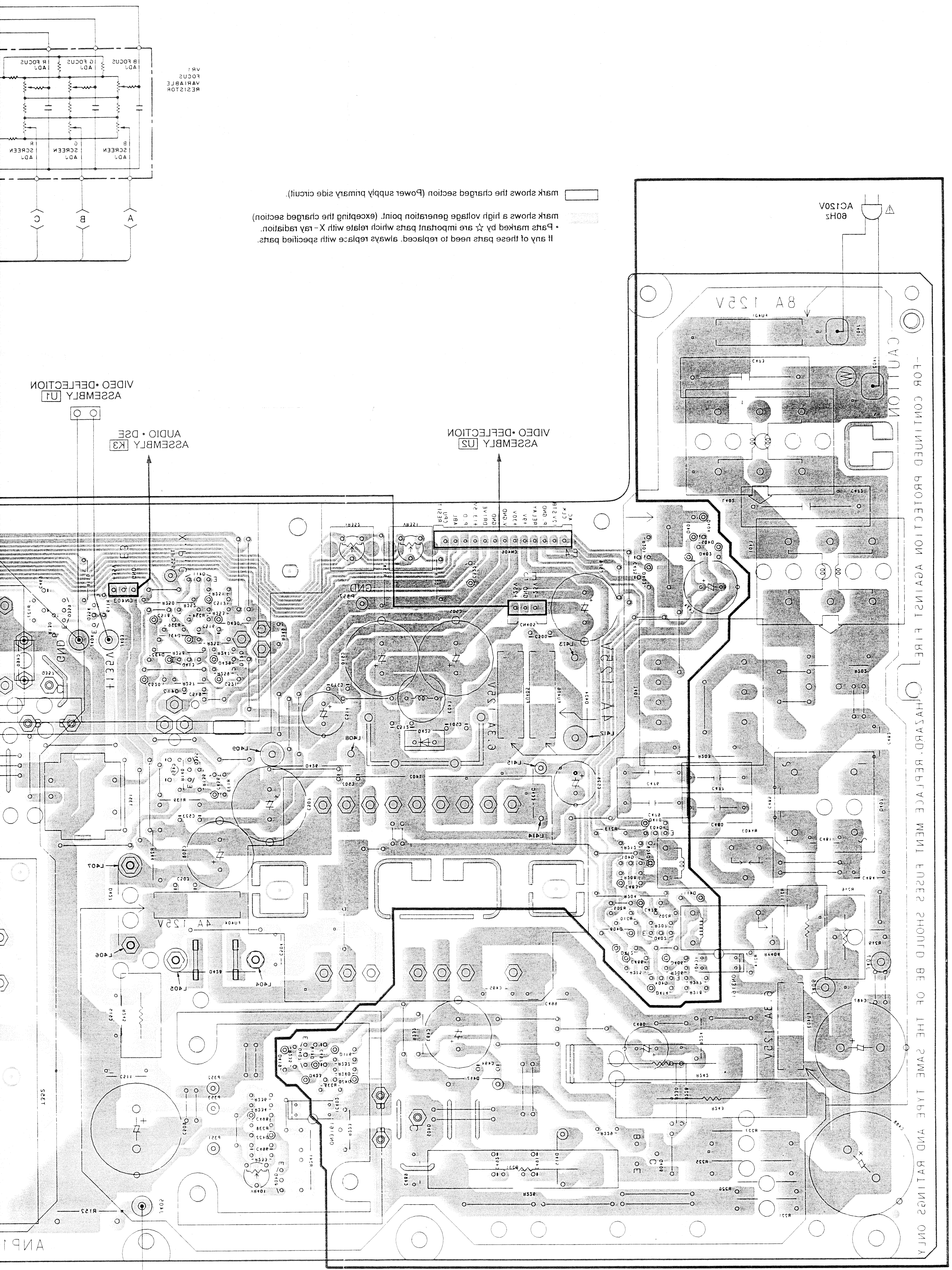
G. CRT DRIVE ASSEMBLY (AWZ3525)
R. CRT DRIVE ASSEMBLY (AWZ3524)
GREEN AWZ3525
RED AWZ3524
BLUE AWZ3526
SCREEN
GND
VIDEO • DEFLECTION ASSEMBLY U19
B. CRT DRIVE ASSEMBLY (AWZ3526)
VIDEO •DEFLECTION ASSEMBLY U8
N1→U8
N2→M2
N3→P2
M1→U8
M2→N2
P1→U8
P2→N3
P3→E5
E5
+9V
+220V
HT+
HT−
A
B
C
2
VR351
VR352
Q411
Q354
Q359
Q353
Q410
Q413
Q358
Q357
Q412
Q356
Q355
IC351
Q352
Q401
—
Q404
Q351
IC401
Q407
Q405
IC402
Q406
Q408
VR401
FOCUS
ANODE
HIGH VOLTAGE
CAUTION
X-RAY
EM-5Y
9
8
7
6
A
B
C
D
E
F


R. CRT DRIVE ASSEMBLY (AWZ3524)
RED
AWZ3524
VWA
SCREEN
GND
M1→U8
M2→N2
+220V
HT+
HT-
VR1 FOCUS VARIABLE RESISTOR
R FOCUS ADJ
G FOCUS ADJ
B FOCUS ADJ
R SCREEN ADJ
G SCREEN ADJ
B SCREEN ADJ
VIDEO • DEFLECTION ASSEMBLY U19
VIDEO •DEFLECTION ASSEMBLY U1
AUDIO • DSE ASSEMBLY K3
A
B
C
tion (Power supply primary side circuit).
eneration point. (excepting the charged section)
ortant parts which relate with X-ray radiation.
e replaced, always replace with specified parts.
VR351
VR352
Q411
Q354
Q359
Q353
Q410
Q413
Q358
Q357
Q412
Q356
Q355
IC351
Q352
Q401
Q404
Q351
IC401
Q407
Q405
IC402
Q406
Q408
VR401
FOCUS
ANODE
HIGH VOLTAGE CAUTION
EM-5Y
+115V
GND
L404
L405
L406
L407
L408
L409
4A 125V
ANP1482-B KU KC S ONLY
7
6
5
4

This P. C. B. connection diagram is viewed from the foil side.

▭ mark shows the charged section (Power supply primary side circuit).

▨ mark shows a high voltage generation point. (excepting the charged section)
• Parts marked by ☆ are important parts which relate with X - ray radiation.
If any of these parts need to replaced, always replace with specified parts.

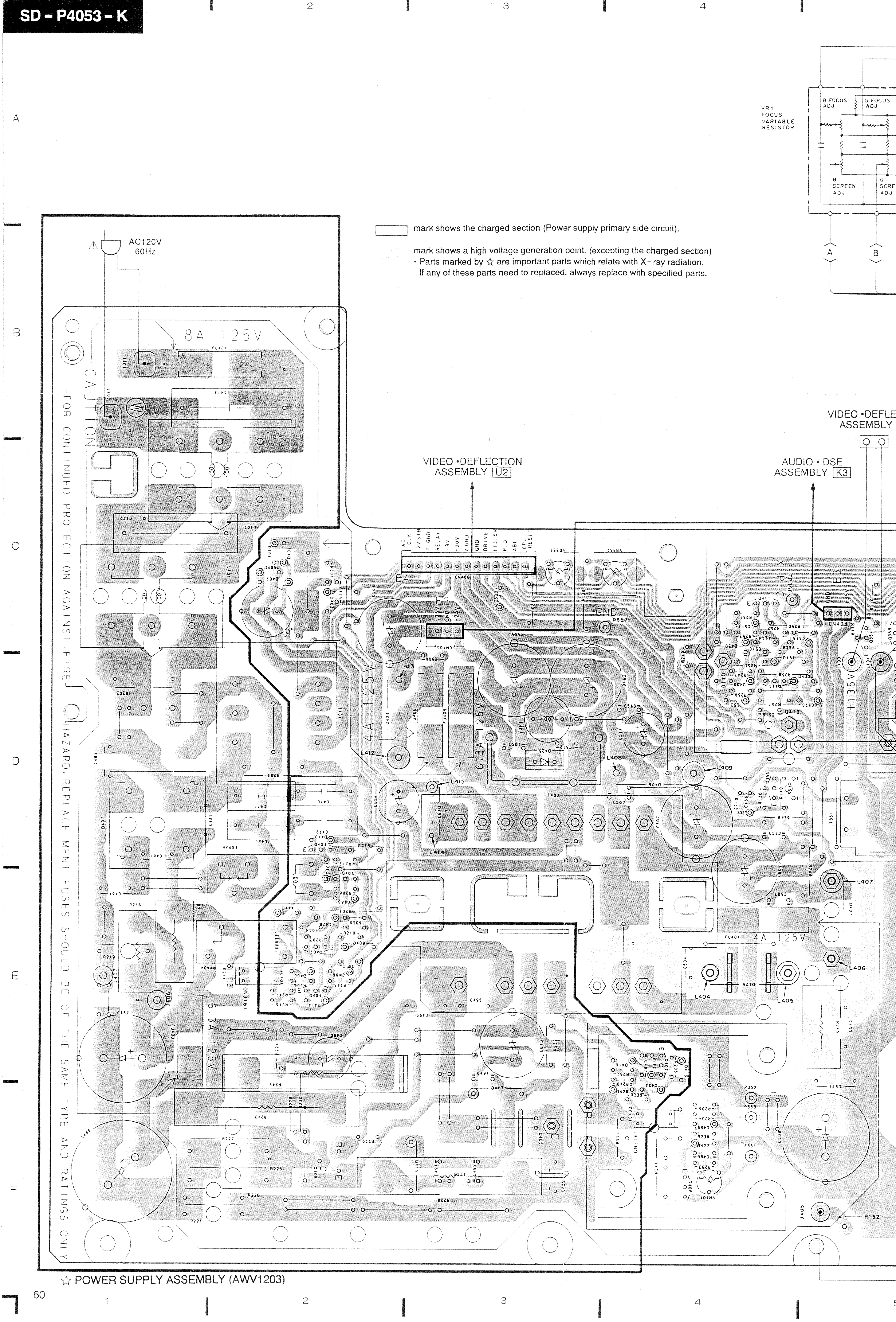

B FOCUS ADJ
G FOCUS ADJ
R FOCUS ADJ
VR1 FOCUS VARIABLE RESISTOR
B SCREEN ADJ
G SCREEN ADJ
R SCREEN ADJ
A
B
C
AC120V 60Hz
VIDEO • DEFLECTION ASSEMBLY U1
AUDIO • DSE ASSEMBLY K3
VIDEO • DEFLECTION ASSEMBLY U2
8A 125V
4A 125V
3.15A 125V
6.3A 125V
CAUTION - FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE MENT FUSES SHOULD BE OF THE SAME TYPE AND RATINGS ONLY
GND
ANP

☆ POWER SUPPLY ASSEMBLY (AWV1203)

mark shows the charged section (Power supply primary side circuit).

mark shows a high voltage generation point. (excepting the charged section)

- Parts marked by ☆ are important parts which relate with X-ray radiation. If any of these parts need to replaced. always replace with specified parts.

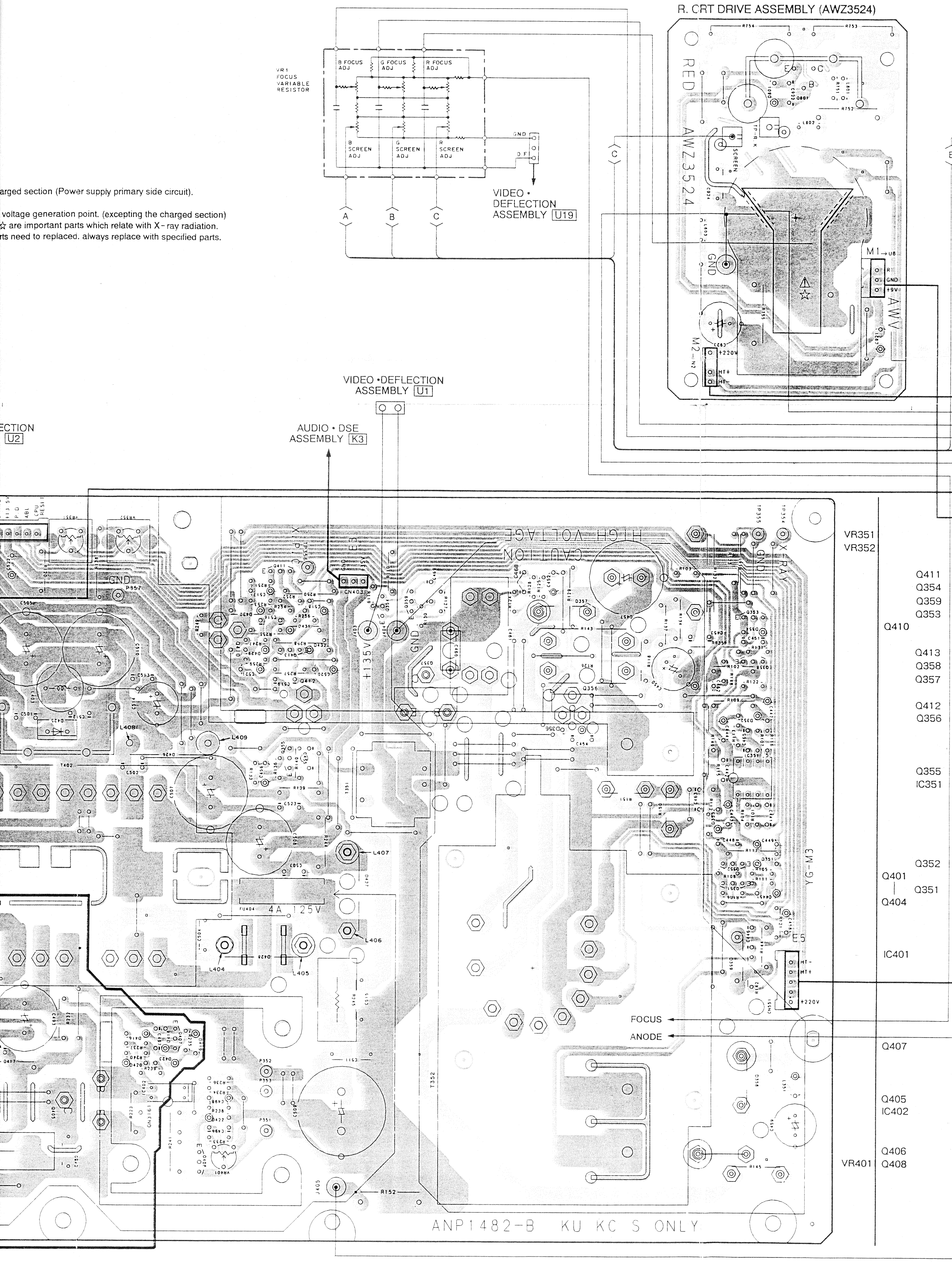

2
3
4
A
B
C
D
E
F
1
VR1 FOCUS VARIABLE RESISTOR
B FOCUS ADJ
G FOCUS ADJ
B SCREEN ADJ
G SCRE ADJ
A
B
AC120V 60Hz
8A 125V
FU401
VIDEO •DEFLECTION ASSEMBLY U2
AUDIO • DSE ASSEMBLY K3
VIDEO •DEFLE ASSEMBLY
AC CLK
12V STB
P GND
RELAY
+9V
+30V
V GND
GND
DRIVE
+13.5V
P D
ABL
CPU RESET
CN406
CN403
CN405
GND
P357
VR351
VR352
4A 125V
6.3A 125V
+135V
L412
L413
L414
L415
L408
L409
L407
L406
L404
L405
T402
RY403
FU404
FU405
FU406
P351
P352
P353
J405
R152

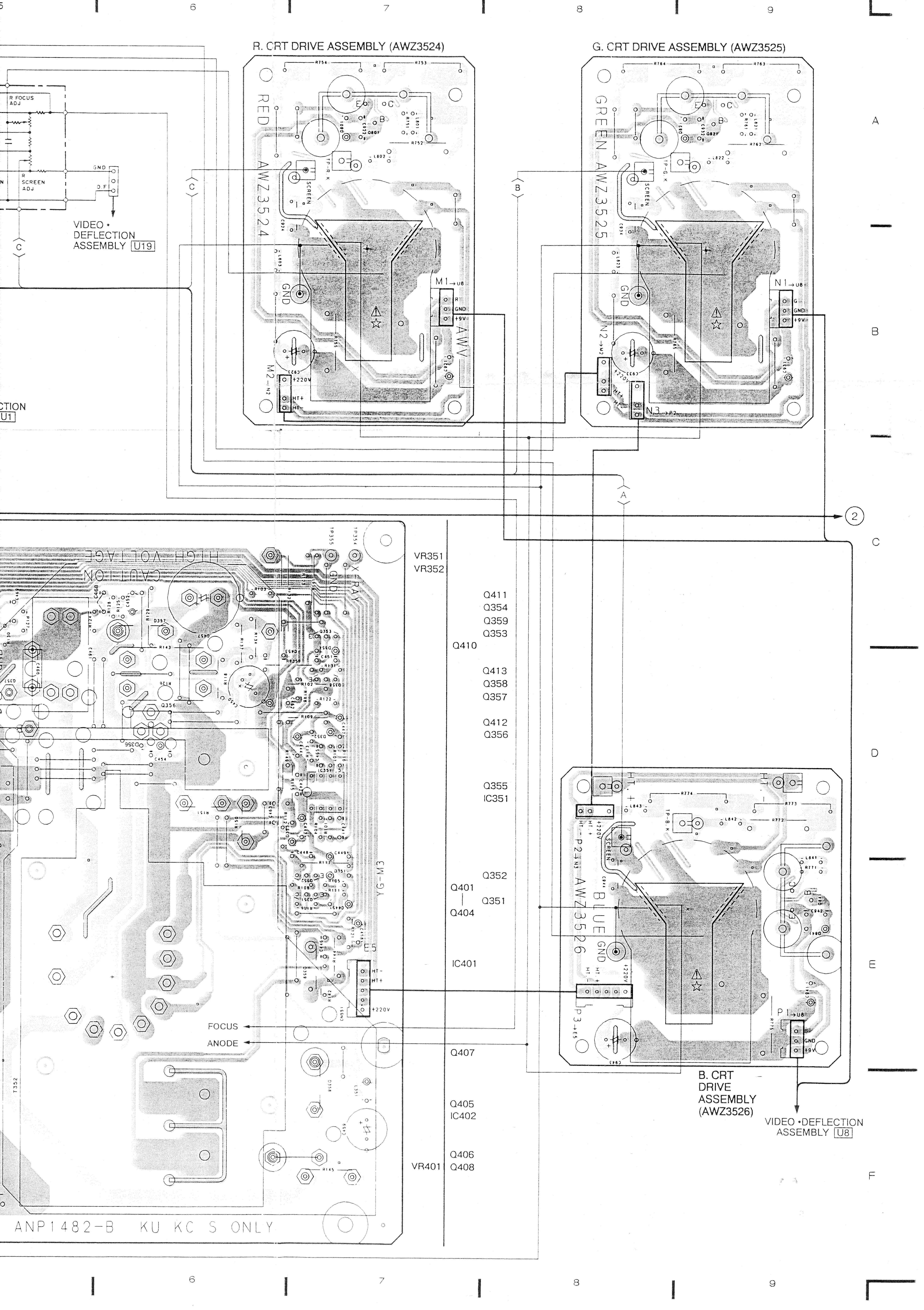
CAUTION
—FOR CONTINUED PROTECTION AGAINST FIRE HAZARD. REPLACE MENT FUSES SHOULD BE OF THE SAME TYPE AND RATINGS ONLY

☆ POWER SUPPLY ASSEMBLY (AWV1203)

arged section (Power supply primary side circuit).

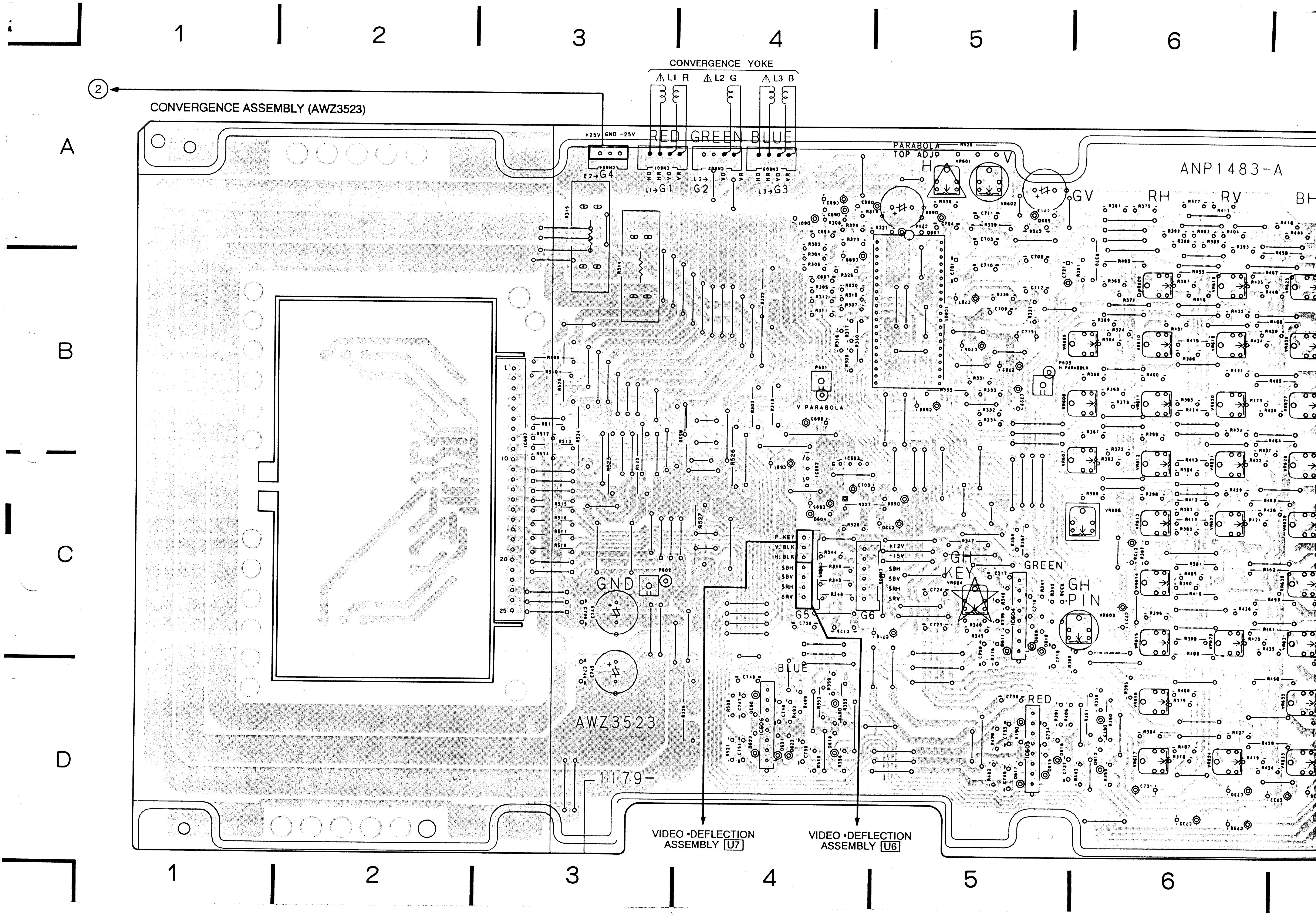
voltage generation point. (excepting the charged section)
☆ are important parts which relate with X - ray radiation.
rts need to replaced. always replace with specified parts.

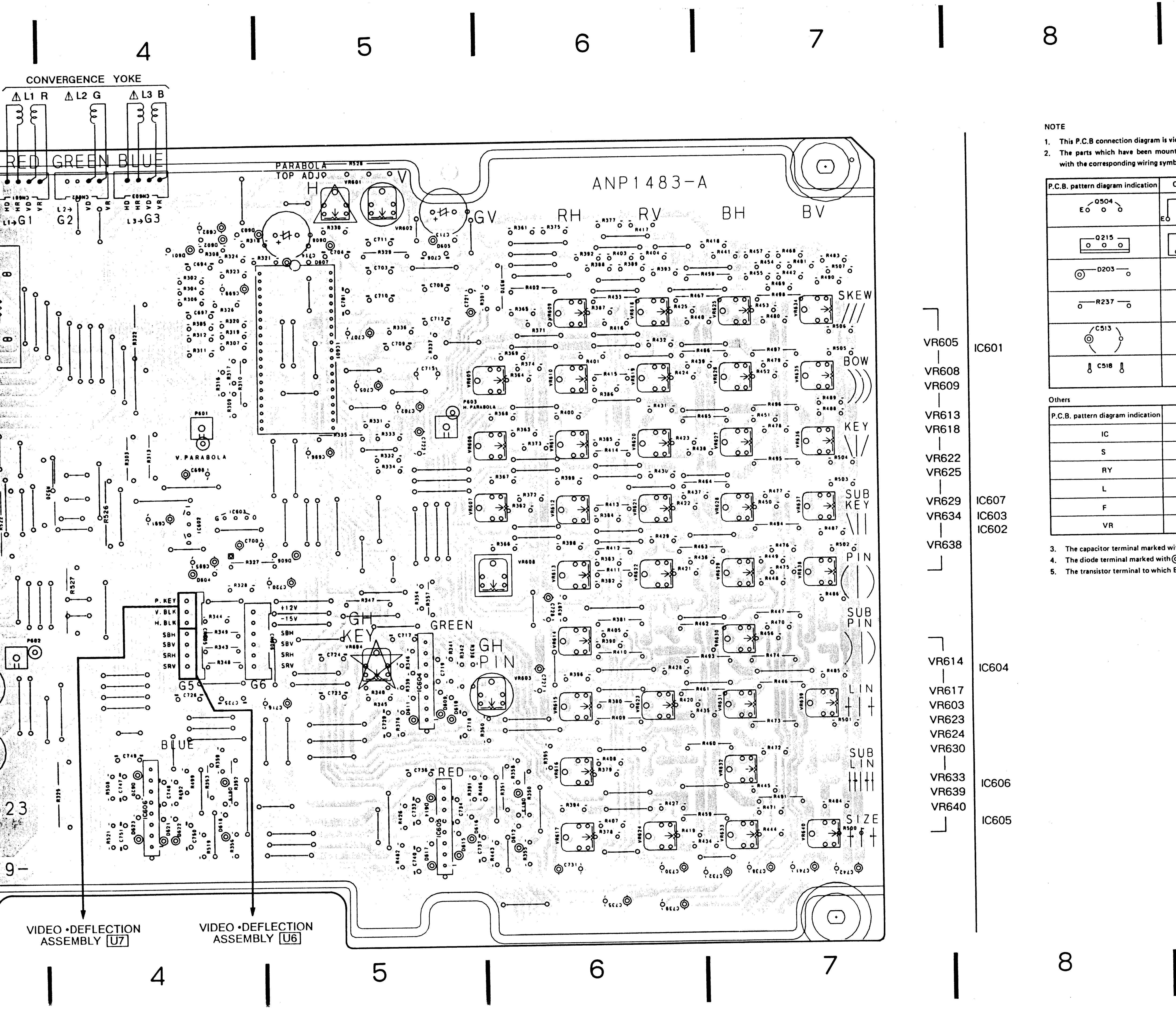

R. CRT DRIVE ASSEMBLY (AWZ3524)
VR1 FOCUS VARIABLE RESISTOR
B FOCUS ADJ
G FOCUS ADJ
R FOCUS ADJ
B SCREEN ADJ
G SCREEN ADJ
R SCREEN ADJ
GND
DF
VIDEO • DEFLECTION ASSEMBLY U19
A
B
C
RED
AWZ3524
SCREEN
GND
M1→U8
R
GND
+9V
AWV
M2←N2
+220V
HT+
HT-
VIDEO •DEFLECTION ASSEMBLY U1
AUDIO • DSE ASSEMBLY K3
ECTION U2
HIGH VOLTAGE CAUTION
X-RAY
GND
CN403
+135V
GND
L409
L408
L407
L406
L404
L405
4A 125V
YG-M3
FOCUS
ANODE
R152
ANP1482-B KU KC S ONLY
VR351
VR352
Q411
Q354
Q359
Q353
Q410
Q413
Q358
Q357
Q412
Q356
Q355
IC351
Q352
Q401
Q404
Q351
IC401
Q407
Q405
IC402
Q406
VR401
Q408



R. CRT DRIVE ASSEMBLY (AWZ3524)
G. CRT DRIVE ASSEMBLY (AWZ3525)
B. CRT DRIVE ASSEMBLY (AWZ3526)
RED AWZ3524
GREEN AWZ3525
BLUE AWZ3526
R FOCUS ADJ
R SCREEN ADJ
GND
VIDEO • DEFLECTION ASSEMBLY U19
VIDEO •DEFLECTION ASSEMBLY U8
CTION U1
C
B
A
2
M1 → U8
N1 → U8
P1 → U8
M2 → N2
N2 → M2
N3 → P2
P2 → N3
P3 → E5
R
G
B
GND
+9V
+220V
HT+
HT-
SCREEN
TP-R K
TP-G K
TP-B K
E
C
B
AWV
VR351
VR352
Q411
Q354
Q359
Q353
Q410
Q413
Q358
Q357
Q412
Q356
Q355
IC351
Q352
Q401
Q404
Q351
IC401
Q407
Q405
IC402
Q406
Q408
VR401
FOCUS
ANODE
HIGH VOLTAGE CAUTION
X-RAY
GND
YG-M3
E5
ANP1482-B KU KC S ONLY
6
7
8
9
A
B
C
D
E
F

CONVERGENCE ASSEMBLY (AWZ3523)


1
2
3
4
5
6
A
B
C
D
②
CONVERGENCE YOKE
⚠L1 R
⚠L2 G
⚠L3 B
+25V GND -25V
E2→G4
RED
GREEN
BLUE
HD HR VD VR
L1→G1
L2→G2
L3→G3
PARABOLA
TOP ADJ
H
V
GV
RH
RV
BH
ANP1483-A
P601
V.PARABOLA
P603
H.PARABOLA
IC607
IC601
IC602
IC603
IC604
IC605
IC606
P.KEY
V.BLK
H.BLK
SBH
SBV
SRH
SRV
G5
G6
+12V
-15V
GH
KEY
GREEN
GH
PIN
GND
P602
BLUE
RED
AWZ3523
1179-
VIDEO•DEFLECTION ASSEMBLY U7
VIDEO•DEFLECTION ASSEMBLY U6


4
5
6
7
8
CONVERGENCE YOKE
L1 R
L2 G
L3 B
RED
GREEN
BLUE
L1→G1
G2
L3→G3
PARABOLA
TOP ADJ
H
V
ANP1483-A
GV
RH
RV
BH
BV
SKEW
BOW
KEY
SUB KEY
PIN
SUB PIN
LIN
SUB LIN
SIZE
P601
V.PARABOLA
P603
H.PARABOLA
VR602
VR601
VR608
P602
P.KEY
V.BLK
H.BLK
SBH
SBV
SRH
SRV
G5
G6
+12V
-15V
SBH
SBV
SRH
SRV
GH
KEY
GREEN
GH
PIN
VR603
BLUE
RED
IC601
IC603
IC604
IC605
IC606
23
9-
VIDEO •DEFLECTION ASSEMBLY U7
VIDEO •DEFLECTION ASSEMBLY U6
4
5
6
7
8
9

VR605
|
VR608
VR609
|
VR613
VR618
|
VR622
VR625
|
VR629
VR634
|
VR638

IC601

IC607
IC603
IC602

VR614
|
VR617
VR603
VR623
VR624
VR630
|
VR633
VR639
VR640

IC604

IC606

IC605

NOTE

1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

| P.C.B. pattern diagram indication | Corresponding part symbol | Part Name |
|---|---|---|
| Q504<br>E | E or E | Transistor |
| Q215 | or | Radiator type transistor |
| D203 | D203 | Diode |
| R237 | R237 | Resistor |
| C513 | + | Capacitor (Polarity) |
| C518 |  | Capacitor (Non-polarity) |

Others

| P.C.B. pattern diagram indication | Part Name |
|---|---|
| IC | IC |
| S | Switch |
| RY | Relay |
| L | Coil |
| F | Filter |
| VR | Variable resistor or Semi-fixed resistor |

3. The capacitor terminal marked with ◎ (double circles) shows negative terminal.
4. The diode terminal marked with ◎ (double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.

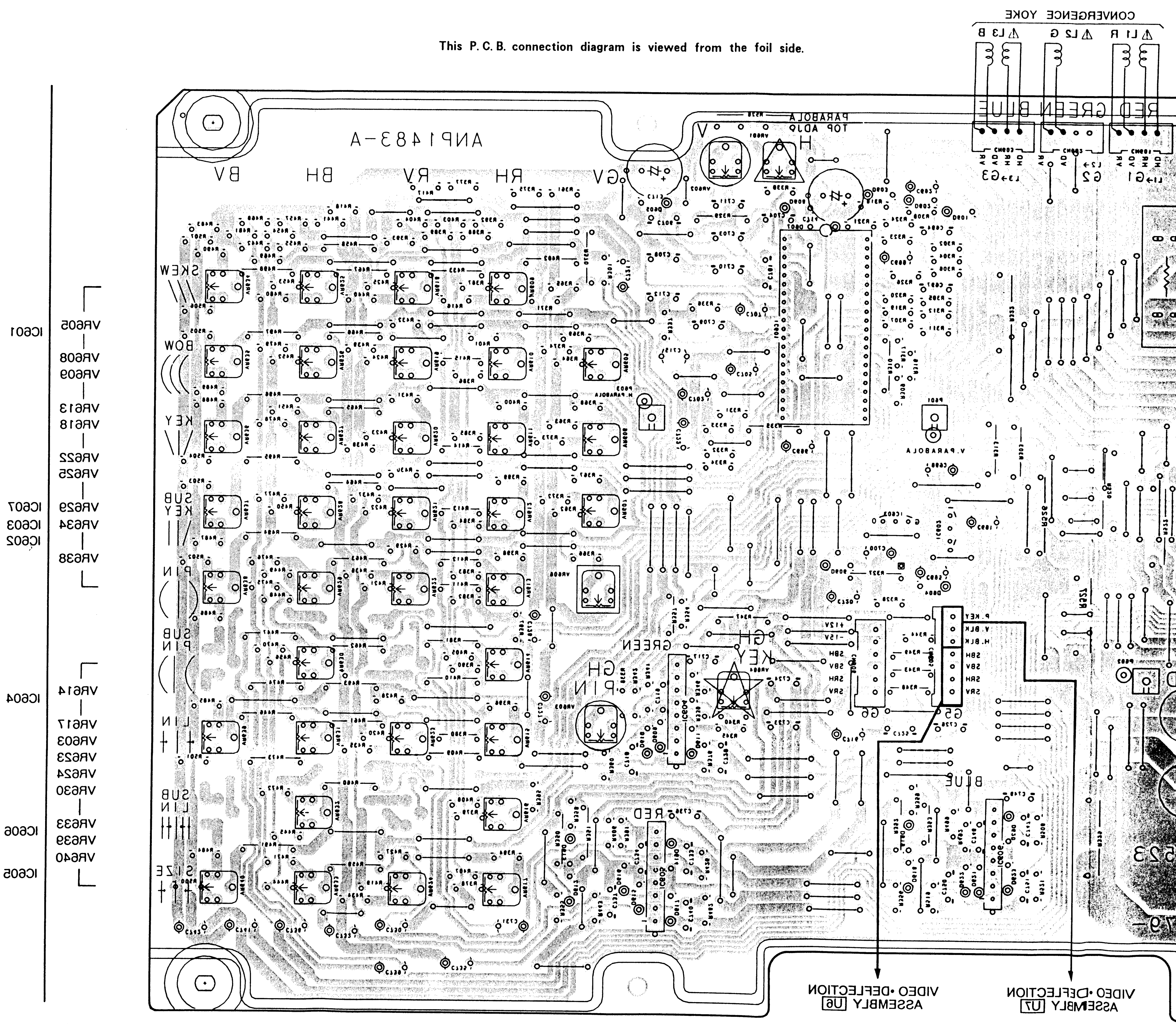
A

B

C

D

This P.C.B. connection diagram is viewed from the foil side.


CONVERGENCE YOKE
L1 R
L2 G
L3 B
RED
GREEN
BLUE
G1
G2
G3
ANP1483-A
BV
BH
RV
RH
GV
V
H
PARABOLA
TOP ADJ
V.PARABOLA
SKEW
BOW
KEY
SUB KEY
PIN
SUB PIN
LIN
SUB LIN
SIZE
GH KEY
GH PIN
GREEN
RED
BLUE
G5
G6
P.KEY
V.BLK
H.BLK
+12V
-15V
IC601
VR605
VR608
VR609
VR613
VR618
VR622
VR625
VR629
VR634
VR638
IC607
IC603
IC602
IC604
VR614
VR617
VR603
VR623
VR624
VR630
VR633
VR639
VR640
IC606
IC605
VIDEO·DEFLECTION ASSEMBLY U6
VIDEO·DEFLECTION ASSEMBLY U7

A

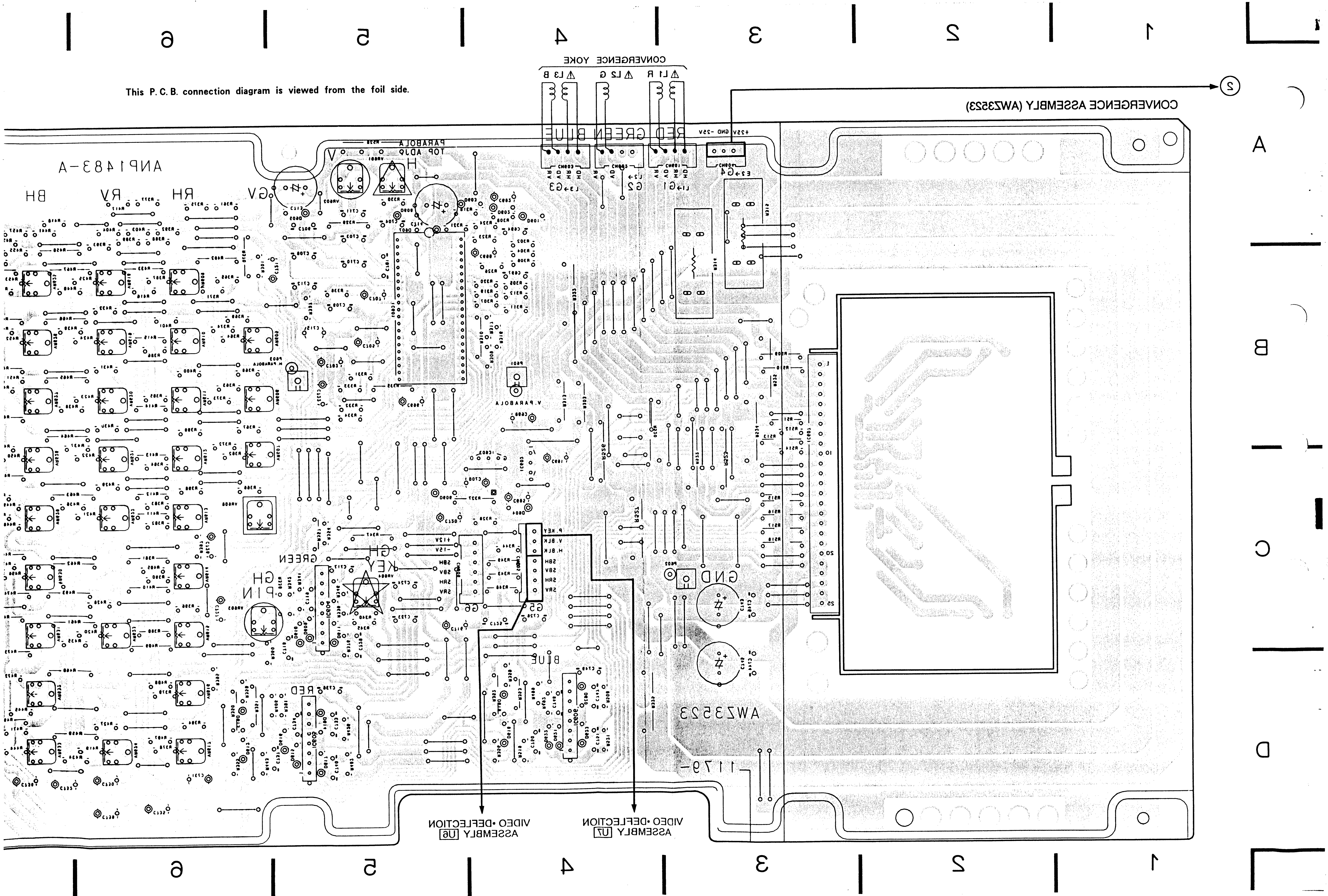
B

C

D

9 8 7 6 5 4

This P. C. B. connection diagram is viewed from the foil side.


6
5
4
3
2
1
A
B
C
D
CONVERGENCE YOKE
L3 B
L2 G
L1 R
CONVERGENCE ASSEMBLY (AWZ3523)
②
+25V GND -25V
BLUE
GREEN
RED
L3→G3
L2→G2
L1→G1
E3→G4
PARABOLA
TOP ADJ
V
H
ANP1483-A
BH
RV
RH
GV
V.PARABOLA
GREEN
GH
KEY
GH
PIN
RED
BLUE
GND
+12V
-15V
P.KEY
V.BLK
H.BLK
SBH
SBV
SRH
SRV
G5
G6
AWZ3523
1179-
VIDEO•DEFLECTION
ASSEMBLY U6
VIDEO•DEFLECTION
ASSEMBLY U7

# 8. P. C. B's PARTS LIST

*NOTES:*

- *Parts without part number cannot be supplied.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

  *Ex.1 When there are 2 effective digits(any digit apart from 0), such as 560 ohm and 47k ohm(tolerance is shown by J=5%, and K=10%).*

  *560 Ω→56 × 10¹ →561 ········ RD1/4PS$\boxed{5}\boxed{6}\boxed{1}$J*
  *47k Ω→47 × 10³ →473 ········ RD1/4PS$\boxed{4}\boxed{7}\boxed{3}$J*
  *0.5 Ω→0R5 ········ RN2H$\boxed{0}\boxed{R}\boxed{5}$K*
  *1 Ω→010 ········ RS1P$\boxed{0}\boxed{1}\boxed{0}$K*

  *Ex.2 When there are 3 effective digits(such as in high precision metal film resistors).*

  *5.62k Ω→562 × 10¹ →5621 ········ RN1/4SR$\boxed{5}\boxed{6}\boxed{2}\boxed{1}$F*
- *Parts marked by ☆ are important parts which relate with X-ray radiation. If any of these parts need to be replaced, always replace with specified parts.*
- *Parts marked by × are important parts which relate with X-ray radiation. If a failure occurs in any of these parts, replace the printed circuit board assembly where the relevant part has already been adjusted as a working component. Do not replace the actual part itself. If any part marked by × is replaced, there is danger of being exposed to X-rays.*

## VIDEO•DEFLECTION ASSEMBLY (AWV1175)

### SEMICONDUCTORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | TH101 | THERMISTOR | TH101-2 |
| | IC101 | LOGIC IC | TC4011BP |
| | IC102 | REGULATOR IC | NJM7809A |
| | IC103 | TV LSI | AN5302K |
| | IC104 | TV IC | PA0030 |
| | IC201 | | RC4558DXP |
| | IC251 | TV IC | M51365SP |
| | IC252 | US MPX DECODER IC | CXA1124AS |
| | IC301 | | M51951BSL |
| | IC302 | | M6M80041P |
| | IC303 | | PDB032B |
| | IC304 | LOGIC IC | TC4051BP |
| | Q101-104 | TRANSISTOR | 2SC1740S |
| | Q105 | TRANSISTOR | 2SC1740S |
| | Q106-109 | TRANSISTOR | 2SA933S |
| | Q110, 111 | TRANSISTOR | 2SC1740S |
| | Q112, 113 | TRANSISTOR | 2SA933S |
| | Q114-116 | TRANSISTOR | 2SC1740S |
| | Q117-121 | TRANSISTOR | 2SA933S |
| | Q122-124 | TRANSISTOR | 2SC1740S |
| | Q125 | TRANSISTOR | 2SA933S |
| | Q126 | TRANSISTOR | 2SC1845 |
| | Q127 | TRANSISTOR | 2SA933S |
| | Q128 | TRANSISTOR | 2SC1740S |
| | Q129 | TRANSISTOR | 2SB950A |
| | Q130 | TRANSISTOR | 2SD1276A |
| | Q131-133 | TRANSISTOR | 2SC1740S |
| | Q134-137 | TRANSISTOR | 2SA933S |
| | Q138, 139 | TRANSISTOR | 2SC1740S |
| | Q140 | TRANSISTOR | 2SA933S |
| | Q141-144 | TRANSISTOR | 2SC1740S |
| | Q147 | N-FET | 2SK246 |
| | Q148, 149 | TRANSISTOR | 2SA933S |
| | Q150, 151 | TRANSISTOR | 2SC1740S |
| | Q152, 153 | N-FET | 2SK246 |
| | Q154, 155 | TRANSISTOR | 2SC1740S |
| | Q156-164 | TRANSISTOR | 2SA933S |
| | Q165-167 | TRANSISTOR | 2SC1740S |
| | Q168 | TRANSISTOR | 2SA933S |
| | Q169 | TRANSISTOR | 2SC1740S |
| | Q170, 171 | TRANSISTOR | 2SA933S |
| | Q172, 173 | TRANSISTOR | 2SC1740S |
| | Q174 | TRANSISTOR | 2SA933S |
| | Q201 | TRANSISTOR | 2SC2705 |
| | Q202 | TRANSISTOR | 2SC33[illegible]2 |
| | Q203 | TRANSISTOR | 2SA1145 |
| | Q204 | TRANSISTOR | 2SD1276A |
| | Q205 | TRANSISTOR | 2SD1911 |
| | Q206 | TRANSISTOR | 2SA1145 |
| | Q254 | TRANSISTOR | 2SC1740S |
| | Q255, 256 | TRANSISTOR | RN120[illegible] |
| | Q257, 258 | TRANSISTOR | 2SC2706 |
| | Q259 | TRANSISTOR | 2SA933S |
| | Q260 | TRANSISTOR | RN120[illegible] |
| | Q261 | TRANSISTOR | 2SA933S |
| | Q262-264 | TRANSISTOR | 2SC1740S |
| | Q265 | TRANSISTOR | 2SC2878 |
| | Q266 | TRANSISTOR | 2SA933S |
| | Q267 | TRANSISTOR | 2SC1740S |
| | Q268 | TRANSISTOR | 2SA933S |
| | Q269 | TRANSISTOR | 2SC1740S |
| | Q270 | TRANSISTOR | 2SD438 |
| | Q301-312 | TRANSISTOR | 2SA933S |
| | Q314 | TRANSISTOR | 2SA933S |
| | Q315-322 | TRANSISTOR | 2SC1740S |
| | Q323 | TRANSISTOR | 2SA933S |
| | Q324-332 | TRANSISTOR | 2SC1740S |
| | Q333, 334 | TRANSISTOR | RN120[illegible] |
| | Q336 | TRANSISTOR | RN120[illegible] |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | Q337 | TRANSISTOR | 2SC1740S |
| | Q338 | TRANSISTOR | 2SD438 |
| | Q340 | TRANSISTOR | 2SC1740S |
| | Q341 | TRANSISTOR | RN1203 |
| | Q342 | TRANSISTOR | RN1201 |
| | Q343 | TRANSISTOR | 2SC1740S |
| | D101-104 | DIODE | 1SS252 |
| | D106-112 | DIODE | 1SS252 |
| | D113 | ZENER DIODE | RD5. 1ESB |
| | D114, 115 | DIODE | 1SS252 |
| | D116-122 | DIODE | 1SS252 |
| | D123 | ZENER DIODE | RD5. 1ESB |
| | D124 | DIODE | 1SS252 |
| | D125-134 | DIODE | 1SS252 |
| | D135-140 | DIODE | 11E2 |
| | D141-145 | DIODE | 1SS252 |
| | D146, 147 | DIODE | 1SS252 |
| | D150, 151 | DIODE | 1SS252 |
| | D152 | ZENER DIODE | RD5. 1ESB |
| | D153-156 | DIODE | 1SS252 |
| | D201 | ZENER DIODE | RD5. 1ESB |
| | D202-204 | DIODE | 1SS252 |
| | D205 | DIODE | 11E2 |
| | D207 | ZENER DIODE | RD39ESB4 |
| | D251 | ZENER DIODE | RD30ESB2 |
| | D252-257 | DIODE | 1SS252 |
| | D258 | ZENER DIODE | RD5. 6ESB2 |
| | D301 | ZENER DIODE | RD15ESB2 |
| | D302 | ZENER DIODE | RD9. 1ESB2 |
| | D303 | ZENER DIODE | RD5. 1ESB2 |
| | D304-310 | DIODE | 1SS252 |
| | D311 | ZENER DIODE | RD6. 8ESB2 |
| | D312-324 | DIODE | 1SS252 |

## COILS,FILTERS AND TRANSFORMER

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | L101 | AXIAL INDUCTOR | LAU150K |
| | L102 | AXIAL INDUCTOR | LAU100K |
| | L103 | AXIAL INDUCTOR | LAU4R7K |
| | L104 | AXIAL INDUCTOR | LAU680K |
| | L105 | AXIAL INDUCTOR | LAU3R9K |
| | L106 | AXIAL INDUCTOR | LAU1R8M |
| | L107 | AXIAL INDUCTOR | LAU3R9K |
| | L112 | AXIAL INDUCTOR | LAU680K |
| | L113 | AXIAL INDUCTOR | LAU1R8M |
| | L120 | COIL (1000 μH) | ATH1046 |
| | L201 | COIL (7 μH) | ATL1053 |
| | L202 | COIL | ATL1081 |
| | L203 | COIL (7 μH) | ATL1082 |
| | L251 | AXIAL INDUCTOR | LAU2R2M |
| | L252 | AXIAL INDUCTOR | LAUR27M |
| | L253 | COIL | ATC-226 |
| | L255-257 | AXIAL INDUCTOR | LAU1R2M |
| | L258 | AXIAL INDUCTOR | LAU120K |
| | L259 | COIL | ATC-226 |
| | L260 | AXIAL INDUCTOR | LAU2R2M |
| | L261 | COIL | ATC-249 |
| | L262, 263 | AXIAL INDUCTOR | LAU2R2M |
| | L264 | FM DETECTION COIL | ATE-067 |
| | L301 | AXIAL INDUCTOR | LAU150K |
| | F251 | SAW FILTER | ATF1046 |
| | F252 | SAW FILTER | ATF1093 |
| | F253 | CERAMIC TRAP | ATF-114 |
| | F254 | CERAMIC FILTER | ATF-166 |
| | T201 | H. DRIVE TRANSFORMER | ATK1045 |

## CAPACITORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | TC431 | CERAMIC TRIMMER | ACM-020 |
| | C101 | CERAMIC CAPACITOR | CCDCH820J50 |
| | C102 | MYLOR FILM CAPACITOR | CQMA681K50 |
| | C103 | CERAMIC CAPACITOR | CCCCH151J50 |
| | C104 | ELECTR. CAPACITOR | CEAS100M50 |
| | C105 | ELECTR. CAPACITOR | CEAS470M16 |
| | C106 | CERAMIC CAPACITOR | CCCCH151J50 |
| | C108 | CERAMIC CAPACITOR | CKDYF473Z50 |
| | C109 | ELECTR. CAPACITOR | CEANP010M50 |
| | C110 | ELECTR. CAPACITOR | CEAS331M16 |
| | C111 | CERAMIC CAPACITOR | CCDCH390J50 |
| | C112 | ELECTR. CAPACITOR | CEAS4R7M50 |
| | C113 | CERAMIC CAPACITOR | CCDSH470J50 |
| | C114 | ELECTR. CAPACITOR | CEAS100M50 |
| | C115 | CERAMIC CAPACITOR | CCCSL220J50 |
| | C116 | CERAMIC CAPACITOR | CCCSL151J50 |
| | C117 | ELECTR. CAPACITOR | CEAS010M50 |
| | C118 | MYLOR FILM CAPACITOR | CQMA223J50 |
| | C119 | MYLOR FILM CAPACITOR | CQMA103J50 |
| | C120 | ELECTR. CAPACITOR | CEAS330M16 |
| | C121 | ELECTR. CAPACITOR | CEAS010M50 |
| | C122 | ELECTR. CAPACITOR | CEAS221M16 |
| | C123 | CERAMIC CAPACITOR | CCCSL121J50 |
| | C124 | MYLOR FILM CAPACITOR | CQMA223J50 |
| | C125 | MYLOR FILM CAPACITOR | CQMA103J50 |
| | C126, 127 | ELECTR. CAPACITOR | CEAS100M50 |
| | C128 | CERAMIC CAPACITOR | CKCYB391K50 |
| | C129 | MYLOR FILM CAPACITOR | CQMA683J50 |
| | C130 | MYLOR FILM CAPACITOR | CQMA182J50 |
| | C131 | ELECTR. CAPACITOR | CEAS2R2M50 |
| | C132 | CERAMIC CAPACITOR | CKCYB391K50 |
| | C134 | CERAMIC CAPACITOR | CKDYF103Z50 |
| | C133 | ELECTR. CAPACITOR | CEAS102M16 |
| | C136 | ELECTR. CAPACITOR | CEAS101M16 |
| | C137 | CERAMIC CAPACITOR | CKDYB222K50 |
| | C138 | CERAMIC CAPACITOR | CKDYF473Z50 |
| | C140 | ELECTR. CAPACITOR | CEAS101M35 |
| | C141 | ELECTR. CAPACITOR | CEAS101M16 |
| | C142, 143 | ELECTR. CAPACITOR | CEAS330M16 |
| | C144 | CERAMIC CAPACITOR | CKCYB561K50 |
| | C145, 146 | CERAMIC CAPACITOR | CKDYF103Z50 |
| | C147 | ELECTR. CAPACITOR | CEAS330M16 |
| | C148 | CERAMIC CAPACITOR | CCDSL101J50 |
| | C149, 150 | CERAMIC CAPACITOR | CKDYF473Z50 |
| | C151 | ELECTR. CAPACITOR | CEAS101M10 |

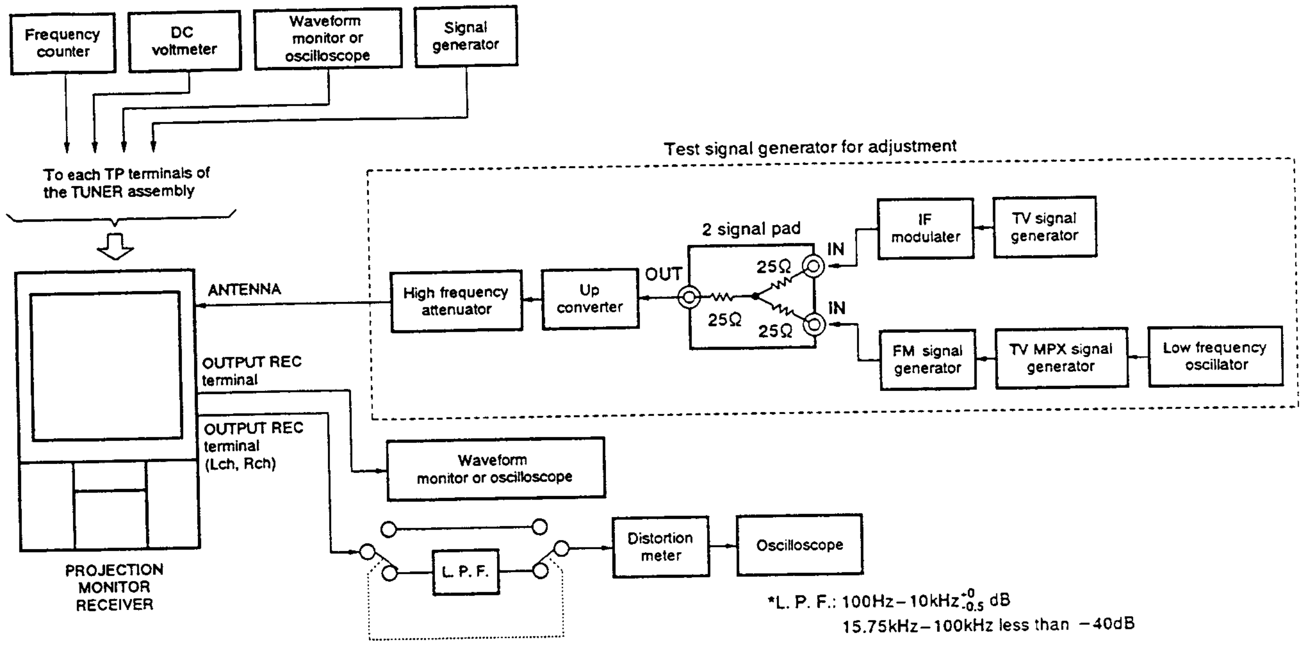
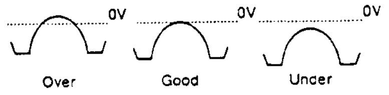
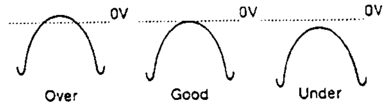

Frequency counter
DC voltmeter
Waveform monitor or oscilloscope
Signal generator
To each TP terminals of the TUNER assembly
Test signal generator for adjustment
2 signal pad
IF modulater
TV signal generator
OUT
IN
25Ω
25Ω
25Ω
IN
ANTENNA
High frequency attenuator
Up converter
FM signal generator
TV MPX signal generator
Low frequency oscillator
OUTPUT REC terminal
OUTPUT REC terminal (Lch, Rch)
Waveform monitor or oscilloscope
L. P. F.
Distortion meter
Oscilloscope
PROJECTION MONITOR RECEIVER
*L. P. F.: 100Hz–10kHz $^{+0}_{-0.5}$ dB
15.75kHz–100kHz less than −40dB

Fig. 9-2 Connection diagram when adjusting the tuner section

## 9.5 WHEN CONVERGENCE ASSEMBLY IS REPAIRED OR REPLACED

### 9.5.1 PARABOLA WAVEFORM TOP LEVEL ADJUSTMENT

- Adjustment test point(P) are located in the CONVERGENCE assembly.
- Perform this adjustment only when convergence is shifted.

| Step No. | Adjustment Item | Adjustment Point | Adjustment Procedure | |
|---|---|---|---|---|
| 1 | TOP LEVEL OF H PARABOLA WAVEFORM | VR601 (C) | At P603, set the top level of output waveform to 0V ± 20mV. |   0V 0V 0V Over Good Under |
| 2 | TOP LEVEL OF V PARABOLA WAVEFORM | VR602 (C) | At P601, set the top level of output waveform to 0V ± 20mV. |   0V 0V 0V Over Good Under |

### 9.4.4 Tuner Section

- No adjustment required when replacing the assembly.
- Perform the adjustment after the deflection, video and control section adjustments.
- Connection diagram is refered to Fig. 9-2.
- Adjustment points and test points(P) are shown in Fig. 9-11.
- Perform the adjustment set to the TEST mode (Note 1).
- Perform the adjustment by using the channel 9 unless otherwise noted.
- Video and audio input signals are described in the below.

Ⓝ ; No signal

Video signal
V① ; fv=EIA color bar, 60dB$\mu$V
V② ; 8 ch, unmodulated, 60dB$\mu$V

Audio signal(MONO)
S① ; $f_A$=1 kHz, 100% MOD, 54dB$\mu$V
S④ ; unmodulated, 54dB$\mu$V

Audio signal(STEREO);
dbx noise reduction ON, PRE-EMPHASIS ON
S② ; $f_A$=300Hz, 30% MOD,
L ch ( or R ch ) only, 54dB$\mu$V
S③ ; $f_A$=5kHz, 30% MOD,
L ch ( or R ch ) only, 54dB$\mu$V

Note 1;

How to set the TEST mode.

- Short-circuit P265(TEST) and GND in the VIDEO•DEFLECTION assembly. (Fig. 9-1)
- Disconnect the AC power cord from the AC outlet, then connect it again.

How to release the TEST mode.

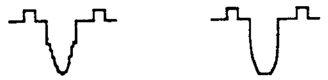
- Release the short-circuit P265(TEST) and GND in the VIDEO • DEFLECTION assembly.
- Disconnect the AC power cord from the AC outlet, then connect it again.

**Video System**

| Step No. | Adjustment Item | Input Signal | | Adjustment Point | Adjustment Procedure |
|---|---|---|---|---|---|
| | | Video | Audio | | |
| 1 | Adjacent audio trap | V② | S④ | L253 (V) | Adjust P253(IF IN) 47.25MHz component to minimum level. |
| 2 | Synchronous detection | V① | S① | —— | Short P257(IF AGC) to GND, and measure P256(APC) voltage. |
| 3 | | | | L261 (V) | Open P257(IF AGC), and adjust the P256(APC) voltage to the voltage measured in step 2. |
| 4 | RF AGC | | | VR251 (V) | Adjust the P252(RF AGC) voltage to 6.5V. |
| 5 | AFT | | | L259 (V) | Adjust the P262(AFT) voltage to 2.5V. |

**Audio System**

| Step No. | Adjustment Item | Input Signal | | Adjustment Point | Adjustment Procedure |
|---|---|---|---|---|---|
| | | Video | Audio | | |
| 1 | Audio detection | V① | S① | L264 (V) | Adjust the distortion of the P255(COMP) to minimum level. |
| 2 | dbx filter | Ⓝ | Ⓝ | VR255 (V) | Input the signal of 22.9kHz/245mV to P255(COMP), and adjust P259(FIL. ADJ) output to minimum. |
| 3 | VCO | Ⓝ | Ⓝ | —— | Measure the DC voltage of P254(MPX VCO) with no input signal. |
| 4 | | Ⓝ | Ⓝ | VR254 (V) | Input the signal of 15.734kHz/48mV to P255(COMP), and adjust the DC voltage of P254(MPX VCO) to the voltage measured in step 3. |
| 5 | Separation | V① | S② | VR253 (V) | Adjust the output of the OUTPUT REC terminal on the rear panel to minimum level. (Adjust the R ch level becomes minimum at the Lch input and the L ch level becomes minimum at the R ch input.) |
| 6 | | | S③ | VR252 (V) | |
| 7 | Repeat steps 5 and 6 to obtained best separation. | | | | |

| Step No. | Adjustment Item | | Input Signal | Adjustment Point | Adjustment Procedure |
|---|---|---|---|---|---|
| 7 | ADJUSTMENT OFFSET mode<br>(PIONEER Standard setting)<br>*1<br>*a | Color adjustment | Color bar | COLOR (*4) | Adjust screen to optimum condition. |
| 8 | | Tint adjustment | | TINT (*4) | Adjust screen to optimum condition. |
| 9 | | Contrast adjustment | Free signal | CONTR (*4) | Adjust screen to optimum condition. |
| 10 | | | | — | At the TP-BK of B. CRT DRIVE assembly, confirm that the signal is shaped as shown below.  Shapely waveform Shapeless waveform |
| 11 | Confirm the focus, size, convergence, white balance and picture quality. | | | | |
| 12 | VNR setting<br>*a | | Set to the VNR setting mode of FACTORY ADJ mode. (After adjustment is complete, release the normal condition.) *2 | | |
| | | | Set the value of numeric telop for each adjustment items as table. *3 | | |
| 13 | Blue tailing adjustment | | Cross signal | — | Adjust the SG output of the input cross signal to maximum level. |
| | | | | | Maximize contrast by remote control. |
| | | | | VR104 (V) | Turn VR104 fully counterclockwise (resulting in blue tailing.). |
| | | | | | Turn the VR clockwise until there is no blue tailing at the vertical cross line on the screen. |

| Item | Telop | Item | Telop |
|---|---|---|---|
| COLOR | − 30 | BRITE | − 30 |
| TINT | 0 | SHARP | − 30 |
| CONTR | 0 | DETAL | − 50 |

*1: After this adjustment, confirm the TINT of the PINP sub picture. (TINT ought to be not shifted.) If it's shifted, adjust the TINT of the sub picture as described in 9.8.
*2: Check the convergence position after releasing the FACTORY ADJ mode.
*3: These values are set at the factory and can be changed at the request of the user.
*4: Adjust by remote control.

### 9.4.3 Control Section

- Perform the adjustment after the deflection and video section adjustments.

| Step No. | Adjustment Item | Input Signal | Adjustment Point | Adjustment Procedure |
|---|---|---|---|---|
| 1 | Telop position *1 | Signal with synchronizing signal meaning | — | Perform convergence position control adjustment as described in section 9.5.2. |
| | | | TC431 (V) | Generate test cross signal, and adjust the cross to center of the screen. |
| 2 | DPO BASE setting<br>*a | — | — | Perform DPO BASE setting as described in section 9.16. |

Note:
*1: No adjustment required when replacing the assembly.

## 9.4 WHEN VIDEO•DEFLECTION ASSEMBLY IS REPAIRED OR REPLACED

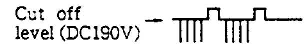
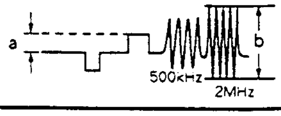
Note: Adjustment items of marked " *a " should be stored in the IC302 when replacing the IC303 (microcomputer) or IC302 (Non-Volatile Memory) or the VIDEO•DEFLECTION assembly.
When replacing the IC303 or IC302, adjustment data should first be stored, if possible, and then be reinput afterwards. When data memory in the IC302 was erased and cannot be stored or when you replacing the VIDEO•DEFLECTION assembly, reset as indicated in the table.

### 9.4.1 Deflection Section

| Step No. | Adjustment Item | Input Signal | Adjustment Point | Adjustment Procedure |
|---|---|---|---|---|
| 1 | Convergence position confirmation | Cross hatch signal | — | Confirm the position of the convergence. If the position is shifted, adjust as described in section 9.5.1. |
| 2 | Convergence confirmation | | | Confirm the convergence. If the convergence is shifted, adjust as described in section 9.5.2. |
| 3 | Focus adjustment | Cross hatch signal | Focus VR (VR1) | Optimize the focus of each CRT assembly. (Focus is easier to judge if red and blue are displaced by turning the convergence controls on the remote control as shown in Fig. 9-3. Readjust these controls to their original positions after completing the focus adjustment.) |
| 4 | Horizontal size adjustment | Monoscope signal or ordinary broadcasting | VR201 (V) | When the monoscope signal is used, adjust the horizontal to 93.5 ± 2% (left) and 94.5 ± 2% (right), and adjust the vertical to 90.0 ± 3% (upper) and 91.0 ± 3% (lower).<br>When the ordinary broadcasting is used, adjust so that the screen picture does not lack any part of entire picture field. |
| 5 | Vertical size adjustment | | VR101 (V) | |

### 9.4.2 Video Section

- As to the FACTORY ADJ mode, refer to the section 9.1.
- Perform this adjustment after the Deflection section adjustment.

| Step No. | Adjustment Item | | Input Signal | Adjustment Point | Adjustment Procedure |
|---|---|---|---|---|---|
| 1 | White balance adjustment | | Color bar signal without color signal | Screen VR (R),(B) (VR1)<br>VR102(R) VR103(B) Drive VR (V) | Adjust the screen VRs (R) and (B) until grey color can just be seen in the color of dark area. (Do not move the green VR at this stage.)<br>Using the drive VR, adjust the color of bright area to white. |
| 2 | ADJUST-MENT OFFSET mode (PIONEER Standard setting) *1 *a | | | | Set to the ADJUSTMENT OFFSET mode (PIONEER standard setting mode) of FACTORY ADJ mode. (After adjustment is complete, release the normal condition.) |
| 3 | | Brightness adjustment | Cross hatch signal | COLOR (*4) | Minimize Color by remote control. |
| 4 | | | | BRITE (*4) | Adjust the cut off level at TP-GK of G. CRT DRIVE assembly to DC190V. (After adjustment, confirm the white balance.)<br> <br>(After this adjustment, adjust color as described in step No. 3). |
| 5 | | Detail adjustment | Multi burst | DETAL (*4) | Adjust the numerical value of telop to 30. *3 |
| 6 | | Sharpness adjustment | | SHARP (*4) | At TP-05 (P110), set the rate of b (peak-to-peak value at 2MHz) to a (level from black to white) as follows. a : b=1 : 1.4 (+3.0dB)<br> |

## 9.2 WHEN POWER SUPPLY ASSEMBLY IS REPAIRED

Note: VR351 and VR352 are protected by the shield covers so that they can not be adjusted. Do not try to turn these volumes by removing their shield cover. (Otherwise, the sensitivity of the protection circuit against the X-ray and the anode voltage will be affected.)

- Adjustment test points are located in the POWER SUPPLY assembly.

| Step No. | Adjustment Item | Input Signal | Adjustment Point | Adjustment Procedure |
|---|---|---|---|---|
| 1 | 135V power supply adjustment | Black burst signal | VR401 (S) | Adjust the voltage of both sides of C509 to 135V ± 1V. |

### ● Each output voltages check

After performed +135V adjustment, confirm the each voltages as follows.

| Measuring Point | Voltage | Measuring Point | Voltage |
|---|---|---|---|
| Connector E4 +12V STB for P.GND | +12V ± 4V | Connector E4 +30V for V.GND | +33V ± 5V |
| Connector E2 +25V for GND | +25V ± 5V | Connector E4 +9V for GND | +10V ± 2V |
| Connector E2 −25V for GND | −25V ± 5V | Connector E3 +35V for GND | +35V ± 5V |
| Connector E4 +13.5Vfor GND | +13.5V ± 0.5V | Connector E5 H.T.+ for H.T. − | +6.25V ± 0.25V |

## 9.3 WHEN POWER SUPPLY ASSEMBLY IS REPLACED

Note: VR351 and VR352 are protected by the shield covers so that they can not be adjusted. Do not try to turn these volumes by removing their shield cover. (Otherwise, the sensitivity of the protection circuit against the X-ray and the anode voltage will be affected.)

- No adjustment required.

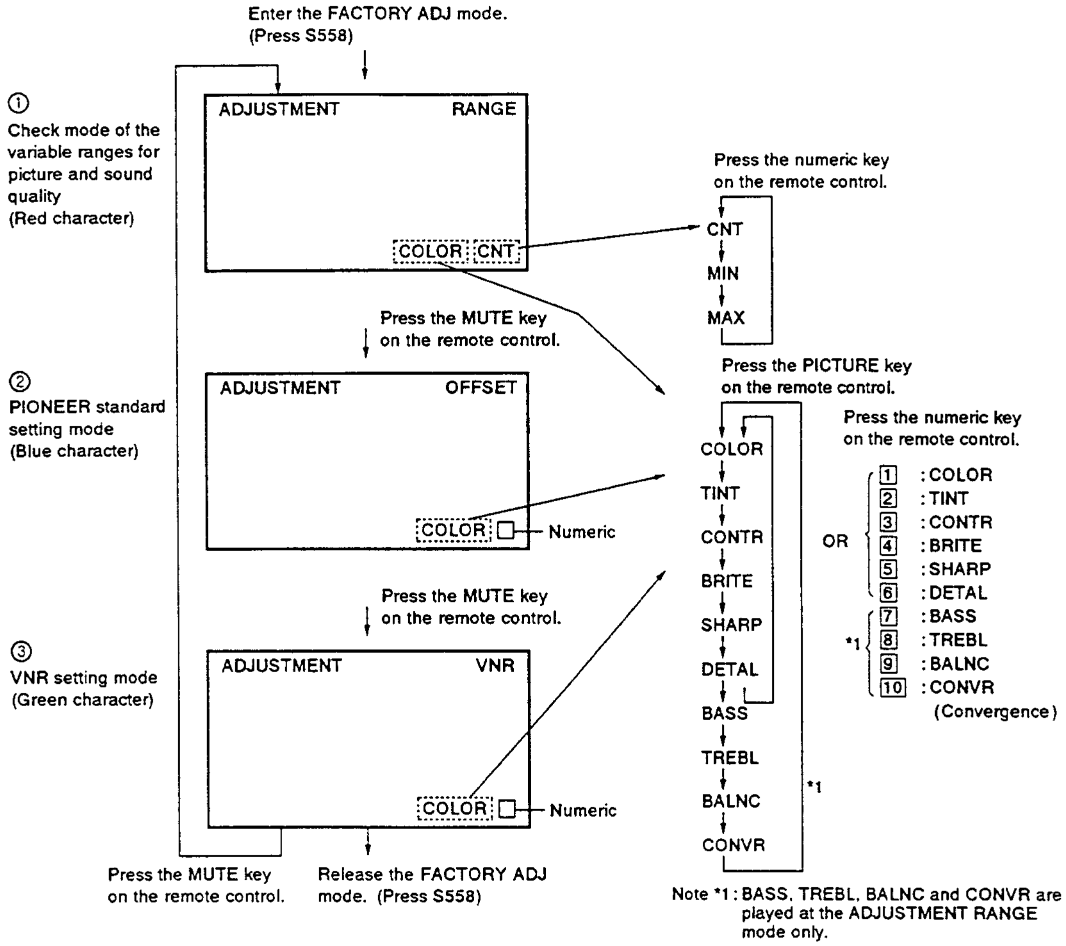

Enter the FACTORY ADJ mode.
(Press S558)
①
Check mode of the variable ranges for picture and sound quality
(Red character)
ADJUSTMENT RANGE
COLOR CNT
Press the numeric key on the remote control.
CNT
MIN
MAX
Press the MUTE key on the remote control.
②
PIONEER standard setting mode
(Blue character)
ADJUSTMENT OFFSET
COLOR
Numeric
Press the PICTURE key on the remote control.
COLOR
TINT
CONTR
BRITE
SHARP
DETAL
BASS
TREBL
BALNC
CONVR
*1
Press the numeric key on the remote control.
OR
1 :COLOR
2 :TINT
3 :CONTR
4 :BRITE
5 :SHARP
6 :DETAL
*1
7 :BASS
8 :TREBL
9 :BALNC
10 :CONVR
(Convergence)
Press the MUTE key on the remote control.
③
VNR setting mode
(Green character)
ADJUSTMENT VNR
COLOR
Numeric
Press the MUTE key on the remote control.
Release the FACTORY ADJ mode. (Press S558)
Note *1 : BASS, TREBL, BALNC and CONVR are played at the ADJUSTMENT RANGE mode only.

Fig. 9-1-1 Screen display of the FACTORY ADJ mode

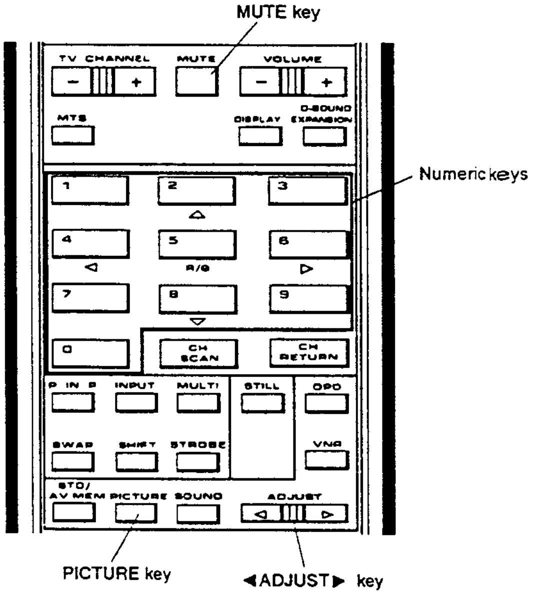

MUTE key
TV CHANNEL
MUTE
VOLUME
MTS
DISPLAY
D-SOUND EXPANSION
Numeric keys
1
2
3
4
5
6
7
8
9
0
CH SCAN
CH RETURN
P IN P
INPUT
MULTI
STILL
OPO
SWAP
SHIFT
STROBE
VNR
STO/ AV MEM
PICTURE
SOUND
ADJUST
PICTURE key
◀ADJUST▶ key

Fig. 9-1-2 Remote control unit

Fig. 9-1 FACTORY ADJ mode

## 9.1 FACTORY ADJ MODE

### • What is FACTORY ADJ MODE ?

FACTORY ADJ mode is activated by pressing S558 at the front panel with a screwdriver or equivalent.
(See Fig.9 - 10.)

There are three FACTORY ADJ modes, as follows:

**1. ADJUSTMENT RANGE Mode**
Allows quick and easy variable range checks of the control items for picture and sound quality, etc (COLOR, TINT, CONTR, BRITE, SHARP, DETAL, BASS, TREBL, BALNC, CONVR).

**2. ADJUSTMENT OFFSET Mode**
Picture quality of the screen (PIONEER STANDARD) is selected when STD on the remote control is pressed.

**3. ADJUSTMENT VNR Mode**
Picture quality can be adjusted in this mode when VNR is turned ON.

When FACTORY ADJ mode is ON, picture and sound quality already adjusted will be reset to "0" and the position of convergence will reset to the center of the variable range.
When FACTORY ADJ mode returns from ON to OFF, the position of convergence, picture quality and sound quality may be adjusted by the user if necessary.

### • How to use the FACTORY ADJ mode

**① ADJUSTMENT RANGE Mode**
FACTORY ADJ mode is activated by pressing S558 at the front panel with a small screwdriver or equivalent. Then the display for ADJUSTMENT RANGE mode will appear on the screen, as shown in Fig. 9 - 1 - 1 ①.
In this mode, the three points, CENTER (CNT), minimum (MIN) and maximum (MAX), with variable range for the control items (picture quality, sound quality and the position of convergence) can be easily confirmed. So, it is not necessary to move the ◀ ADJUST ▶ key up or down. The numeric keys on the remote control are used for confirming the condition.
The relationships between the control itemes and the numeric keys are as follows.

[1] : COLOR
[2] : TINT
[3] : CONTR
[4] : BRITE
[5] : SHARP
[6] : DETAL
[7] : BASS
[8] : TREBL
[9] : BALNC
[10] : CONVR (convergence)

For example, to confirm the variable range for TINT, press the [2] key on the remote control. Press the [2] repeatedly. The points to be checked are cyclically selected in sequence from among CNT, MIN and MAX.
For other keys, follow the same procedure. (To confirm the picture or sound, use signals whose variable ranges can be easily confirmed.)

Note:
- [9] : Confirmation of BALNC
  CNT : Output both channels
  MIN : Output R channel only
  MAX : Output L channel only
- [10] : Confirmation of CONVR
  CNT : Center position
  MIN : Moves toward the upper right
  MAX : Moves toward the lower left

**② ADJUSTMENT OFFSET Mode (PIONEER STANDARD SETTING mode)**
ADJUSTMENT RANGE mode is changed to ADJUSTMENT OFFSET mode by pressing the MUTE key on the remote control, as shown in Fig. 9 - 1 - 1 ②.
The picture quality adjusted in this mode by selecting the normal condition of (COLOR, TINT, CONTR, BRITE, SHARP and DETAL) is the PIONEER STANDARD.
Adjustment is made by selecting the items for the picture using the numeric keys from [1] to [6] and by selecting numerics displayed in the lower right portion of the screen using the ◀ ADJUST ▶ keys.

**③ ADJUSTMENT VNR Mode (VNR SETTING mode)**
ADJUSTMENT OFFSET mode is changed to ADJUSTMENT VNR mode by pressing the MUTE key on the remote control, as shown in Fig. 9 - 1 - 1 ③.
The picture quality adjusted in this mode by selecting the control items (COLOR, TINT, CONTR, BRITE, SHARP, DETAL) is the picture quality acquired with VNR in the ON position.
Adjustment is made in the same way as in ADJUSTMENT OFFSET mode. (However, input values differ between the two modes.)

# 9. ADJUSTMENT

- Adjustment items are described as follows.

9.1 FACTORY ADJ MODE
9.2 WHEN POWER SUPPLY ASSEMBLIY IS REPAIRED
9.3 WHEN POWER SUPPLY ASSEMBLIY IS REPLACED
9.4 WHEN VIDEO DEFLECTION ASSEMBLY IS REPAIRED OR REPLACED
(Deflection, Video, Control and Tuner sections)
9.5 WHEN CONVERGENCE ASSEMBLY IS REPAIRED OR REPLACED
9.6 WHEN AV I/O-3P•Y/C SEP ASSEMBLY IS REPAIRED
9.7 WHEN AV I/O-3P•Y/C SEP ASSEMBLY IS REPLACED
9.8 WHEN PINP ASSEMBLY IS REPAIRED OR REPLACED
9.9 WHEN FRONT CONTROL ASSEMBLY IS REPAIRED
9.10 WHEN FRONT CONTROL ASSEMBLY IS REPLACED
9.11 WHEN R, G OR B CRT DRIVE ASSEMBLY IS REPAIRED OR REPLACED
9.12 WHEN CRT ASSEMBLY R, G OR B IS REPLACED
9.13 WHEN LENS ASSEMBLY IS REPLACED
9.14 WHEN OTHER ASSEMBLIES ARE REPAIRED OR REPLACED
9.15 DPO BASE SETTING
9.16 DPO SENSITIVITY ADJUSTMENT
9.17 ANODE CABLE CONNECTION AND DISCONNECTION

- These adjustment procedures are described separately for adjustments following assembly exchange and adjustments following repairs.

- When replacing the assemblies, always use recommended replacements.

- Symbols in parentheses next to the adjustment position ( ) indicate denotes the relevant assembly to be adjusted.
  S: POWER SUPPLY assembly
  VR1: Focus variable resistor
  V: VIDEO • DEFLECTION assembly
  A: AV I/O-3P • Y/C SEP assembly
  C: CONVERGENCE assembly
  P: PINP assembly

- The adjustment points and TP terminals on the each assemblies are shown in Fig. 9-8 thru 9-11.
  Fig. 9-8:
    R, G, B CRT DRIVE assemblies and deflection yoke.
  Fig. 9-9:
    Lens assembly (Red, Green, Blue).
  Fig. 9-10:
    CONVERGENCE assembly, front panel, FRONT CONTROL assembly and focus variable resistor.
  Fig. 9-11:
    VIDEO • DEFLECTION assembly, AV I/O-3P•Y/C SEP assembly, POWER SUPPLY assembly and PINP assembly.

- Set the input terminals at the rear panel as follows unless otherwise noted.
  VIDEO signal : INPUT LD VIDEO terminal
  AUDIO signal : INPUT LD AUDIO terminal

- Set the picture quality to standard by remote control unit unless otherwise noted.

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | C886 | ELECTR. CAPACITOR | CEAS101M10 |
| | C887 | CERAMIC CAPACITOR | CKDYF473Z50 |
| | C888-890 | ELECTR. CAPACITOR | CEAS010M50 |
| | C891 | CERAMIC CAPACITOR | CKDYF473Z50 |
| | C892, 893 | ELECTR. CAPACITOR | CEAS101M10 |
| | C894 | CERAMIC CAPACITOR | CKDYF473Z50 |
| | C897 | CERAMIC CAPACITOR | CCDSL470J50 |
| | C898 | CERAMIC CAPACITOR | CCDSL101J50 |
| | C899 | ELECTROLYTIC CAPACIT | CEAS2R2M50 |
| | C900 | ELECTR. CAPACITOR | CEAS470M10 |
| | C901, 905 | ELECTR. CAPACITOR | CEAS471M10 |
| | C906-910 | CERAMIC CAPACITOR | CKDYF473Z50 |
| | C911 | CERAMIC CAPACITOR | CCDSL270J50 |
| | C912 | CERAMIC CAPACITOR | CCDSL221J50 |
| | C913-916 | CERAMIC CAPACITOR | CKDYF473Z50 |

### RESISTORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | VR701 | VR(47KΩ) | VRTS6VS473 |
| | R1382 | METALFILM RESISTER | RN1/4PC4702F |
| | R1393 | CARBON FILM RESISTOR | RD1/4PMFL3R9J |
| | | OTHER RESISTORS | RD1/8PM□□□J |

### OTHERS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | X701, 702 | Crystal resonator (14. 31818MHz) | ASS1056 |
| | | SHIELD CASE | ANK1169 |
| | | SHIELD PLATE | ANK1170 |

## PINP SUB ASSEMBLY (AWZ3656)

### SEMICONDUCTORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | Q702 | TRANSISTOR | 2SC1740S |
| | Q703 | TRANSISTOR | 2SA933S |
| | Q713, 714 | TRANSISTOR | 2SC1740S |
| | Q717 | TRANSISTOR | 2SA933S |

### CAPACITORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | C828, 857 | ELECTR. CAPACITOR | CEAS100M50 |
| | C895 | ELECTR. CAPACITOR | CEAS101M10 |

### RESISTORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | | ALL RESISTORS | RD1/8PM□□□J |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | C660 | ELECTR. CAPACITOR | CEAS222M35 |
| | C661, 662 | ELECTR. CAPACITOR | CEAS010M50 |
| | C663, 664 | CERAMIC CAPACITOR | CKDYF473Z50 |
| | C665 | ELECTR. CAPACITOR | CEAS471M50 |
| | C666 | AUDIO FILM CAPACITOR | CFTXA124J50 |
| | C667 | CERAMIC CAPACITOR | CKDYF473Z50 |

### RESISTORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | R1132 | CARBON FILM RESISTOR | RD1/4PMFL150J |
| | R1180 | CARBONFILM RESISTOR | RD1/2PM152J |
| | R1181, 1182 | CARBON FILM RESISTOR | RD1/4PMFL□□□J |
| | R1184 | CARBONFILM RESISTOR | RD1/2PM152J |
| | R1186, 1187 | CARBON FILM RESISTOR | RD1/4PMFL□□□J |
| | | OTHER RESISTORS | RD1/8PM□□□J |

## PINP ASSEMBLY(AWZ3655)

### SEMICONDUCTORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | IC701 | LOGIC IC | TC4094BP |
| | IC702 | VIDEO A/D D/A IC | MB40176PF |
| | IC703 | VIDEO RAM | MB81C1501PF |
| | IC704 | P IN P CONTROLLER IC | MB86153APF |
| | IC705 | REGULATOR IC | NJM78M05FAS |
| | IC706 | | MB3511P |
| | Q701, 704 | TRANSISTOR | 2SC1740S |
| | Q705 | TRANSISTOR | 2SA933S |
| | Q706 | TRANSISTOR | 2SC1740S |
| | Q707 | TRANSISTOR | 2SA933S |
| | Q708-710 | TRANSISTOR | 2SC1740S |
| | Q711, 712 | TRANSISTOR | 2SA933S |
| | Q715 | TRANSISTOR | 2SC1740S |
| | Q716 | TRANSISTOR | 2SA933S |
| | Q718 | TRANSISTOR | 2SC1740S |
| | Q719 | TRANSISTOR | 2SA933S |
| | D701-704 | DIODE | 1SS252 |

### COILS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | L701 | AXIAL INDUCTOR | LAU2R2K |
| | L702 | COIL(100μH) | ATH1046 |
| | L703 | AXIAL INDUCTOR | LAUR22M |
| | L704 | AXIAL INDUCTOR | LAU151K |
| | L706-713 | AXIAL INDUCTOR | LAU2R2K |
| | L715 | AXIAL INDUCTOR | LAU100K |
| | L717 | AXIAL INDUCTOR | LAU220K |
| | L718 | AXIAL INDUCTOR | LAU101K |
| | L720-730 | AXIAL INDUCTOR | LAUR22M |

### CAPACITORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | C821 | ELECTROLYTIC CAPACIT | CEAS221M10 |
| | C822 | CERAMIC CAPACITOR | CKDYF473Z50 |
| | C823 | ELECTR. CAPACITOR | CEAS471M16 |
| | C824 | CERAMIC CAPACITOR | CKDYF473Z50 |
| | C825 | ELECTR. CAPACITOR | CEAS101M10 |
| | C826 | CERAMIC CAPACITOR | CKDYF473Z50 |
| | C827 | CERAMIC CAPACITOR | CCDSL101J50 |
| | C829 | ELECTR. CAPACITOR | CEAS100M50 |
| | C830 | CERAMIC CAPACITOR | CCDCH680J50 |
| | C831 | CERAMIC CAPACITOR | CKDYF103Z50 |
| | C832 | CERAMIC CAPACITOR | CCDCH150J50 |
| | C833 | ELECTR. CAPACITOR | CEAS100M50 |
| | C834 | CERAMIC CAPACITOR | CCDCH150J50 |
| | C835 | CERAMIC CAPACITOR | CKDYB102K50 |
| | C836 | CERAMIC CAPACITOR | CCDCH180J50 |
| | C837 | ELECTR. CAPACITOR | CEAS3R3M50 |
| | C838 | ELECTR. CAPACITOR | CEASR47M50 |
| | C839 | CERAMIC CAPACITOR | CCDSL101J50 |
| | C840 | CERAMIC CAPACITOR | CCDSL100D50 |
| | C841 | MYLOR FILM CAPACITOR | CQMA103J50 |
| | C842 | ELECTR. CAPACITOR | CEAS010M50 |
| | C843 | ELECTR. CAPACITOR | CEASR33M50 |
| | C844 | ELECTR. CAPACITOR | CEASR47M50 |
| | C845 | MYLOR FILM CAPACITOR | CQMA103J50 |
| | C846 | ELECTR. CAPACITOR | CEAS2R2M50 |
| | C847 | ELECTR. CAPACITOR | CEASR22M50 |
| | C848 | CERAMIC CAPACITOR | CCDSL101J50 |
| | C849 | ELECTR. CAPACITOR | CEAS101M10 |
| | C850 | CERAMIC CAPACITOR | CKDYF473Z50 |
| | C851 | CERAMIC CAPACITOR | CCDSL100D50 |
| | C852 | ELECTR. CAPACITOR | CEAS3R3M50 |
| | C853 | MYLOR FILM CAPACITOR | CQMA822J50 |
| | C854 | CERAMIC CAPACITOR | CCDSL100D50 |
| | C855 | CERAMIC CAPACITOR | CCDCH180J50 |
| | C856 | CERAMIC CAPACITOR | CKDYB102K50 |
| | C858 | CERAMIC CAPACITOR | CCDSL270J50 |
| | C859, 860 | CERAMIC CAPACITOR | CCDCH150J50 |
| | C861 | ELECTR. CAPACITOR | CEAS101M10 |
| | C862 | CERAMIC CAPACITOR | CKDYF473Z50 |
| | C863 | CERAMIC CAPACITOR | CKDYF103Z50 |
| | C864 | MYLOR FILM CAPACITOR | CQMA104J50 |
| | C865 | ELECTROLYTIC CAPACIT | CEAS010M50 |
| | C866 | CERAMIC CAPACITOR | CCDCH680J50 |
| | C867 | CERAMIC CAPACITOR | CCDSL101J50 |
| | C868 | ELECTR. CAPACITOR | CEAS100M50 |
| | C869 | ELECTR. CAPACITOR | CEAS101M16 |
| | C870 | ELECTR. CAPACITOR | CEAS101M10 |
| | C871 | CERAMIC CAPACITOR | CCDSL101J50 |
| | C872 | CERAMIC CAPACITOR | CKDYF473Z50 |
| | C873 | CERAMIC CAPACITOR | CCDSL470J50 |
| | C874 | ELECTR. CAPACITOR | CEAS221M10 |
| | C875 | CERAMIC CAPACITOR | CKDYF473Z50 |
| | C876 | CERAMIC CAPACITOR | CCDSL101J50 |
| | C877 | ELECTR. CAPACITOR | CEAS010M50 |
| | C878 | CERAMIC CAPACITOR | CCDSL101J50 |
| | C879 | ELECTR. CAPACITOR | CEAS221M10 |
| | C880, 882 | CERAMIC CAPACITOR | CKDYF473Z50 |
| | C883 | MYLOR FILM CAPACITOR | CQMA102J50 |
| | C884 | ELECTR. CAPACITOR | CEAS101M10 |
| | C885 | CERAMIC CAPACITOR | CKDYF473Z50 |

## IR RECEIVER ASSEMBLY (AWZ3543)

### CAPACITORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | C678 | CERAMIC CAPACITOR | CCMSL121J50 |
| | C679 | ELECTR. CAPACITOR | CEJA101M6 |

### RESISTOR

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | R1220 | CARBONFILM RESISTOR | RD1/8PM102J |

### OTHERS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | | REMOTE RECEIVER UNIT | AXX1010 |

## SP TERMINAL ASSEMBLY (AWZ3545)

### SWITCH

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | S501 | SLIDE SWITCH (SPEAKER SELECTOR) | ASH1001 |

### RESISTORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | | ALL RESISTORS | RD1/8PM□□□J |

### OTHERS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | | PIN JACK (2P) | AKB1126 |
| | | SPEAKER TERMINAL 4-P | AKE1021 |

## FRONT INPUT TERMINAL ASSEMBLY (AWZ3547)

### OTHERS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | | PHONO JACK 1-P | AKB-104 |
| | | PHONO JACK 1-P | AKB-105 |
| | | PHONO JACK 1-P | AKB-106 |
| | | SOCKET | AKP1016 |

### RESISTORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | | ALL RESISTORS | RD1/8PM□□□J |

## AUDIO•DSE ASSEMBLY (AWZ3538)

### SEMICONDUCTORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | IC501 | | PA0049 |
| | IC503 | OP-AMP IC | NJM4558S-X |
| | IC504 | AUDIO IC | TA7630P |
| | IC505 | AUDIO IC | LA4280 |
| | Q501-506 | TRANSISTOR | 2SC2458 |
| | Q507, 508 | TRANSISTOR | 2SC1740S |
| | Q509, 510 | TRANSISTOR | 2SC3327 |
| | Q511, 512 | TRANSISTOR | 2SC1740S |
| | Q513 | TRANSISTOR | 2SA933S |
| | Q514 | TRANSISTOR | 2SC1740S |
| | D501 | DIODE | 11E2 |
| | D502, 503 | DIODE | 1SS252 |
| | D504, 505 | ZENER DIODE | RD6.8ESB2 |
| | D506-514 | DIODE | 1SS252 |
| | D515 | ZENER DIODE | RD5.1ESB2 |
| | D516-518 | DIODE | 1SS252 |
| | D520 | DIODE | 1SS252 |

### COILS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | L501, 502 | COIL (1μH) | ATH-133 |

### CAPACITORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | C569, 597 | ELECTROLYTIC CAPACIT | CEAS221M50 |
| | C598, 599 | CERAMIC CAPACITOR | CKMYB151K50 |
| | C600 | ELECTR. CAPACITOR | CEAS100M25 |
| | C601 | ELECTR. CAPACITOR | CEAS102M16 |
| | C602-604 | ELECTR. CAPACITOR | CEAS010M50 |
| | C605 | ELECTR. CAPACITOR | CEASR47M50 |
| | C607 | ELECTR. CAPACITOR | CEAS010M50 |
| | C608 | MYLOR FILM CAPACITOR | CQMA102K50 |
| | C609 | ELECTR. CAPACITOR | CEAS102M16 |
| | C610 | MYLOR FILM CAPACITOR | CQMA102K50 |
| | C611 | ELECTR. CAPACITOR | CEAS4R7M50 |
| | C612, 613 | AUDIO FILM CAPACITOR | CFTXA154J50 |
| | C614 | AUDIO FILM CAPACITOR | CFTXA223J50 |
| | C615 | AUDIO FILM CAPACITOR | CFTXA474J50 |
| | C616, 617 | ELECTR. CAPACITOR | CEAS4R7M50 |
| | C618 | ELECTROLYTIC CAPACIT | CEAS6R8M50 |
| | C619 | ELECTR. CAPACITOR | CEAS470M10 |
| | C620 | AUDIO FILM CAPACITOR | CFTXA104J50 |
| | C621, 622 | CERAMIC CAPACITOR | CKCYB562K50 |
| | C623, 624 | AUDIO FILM CAPACITOR | CFTXA124J50 |
| | C625 | ELECTR. CAPACITOR | CEAS470M10 |
| | C626, 627 | ELECTR. CAPACITOR | CEAS100M50 |
| | C628 | AUDIO FILM CAPACITOR | CFTXA223J50 |
| | C629 | AUDIO FILM CAPACITOR | CFTXA224J50 |
| | C630 | ELECTR. CAPACITOR | CEAS470M10 |
| | C631 | ELECTR. CAPACITOR | CEAS100M50 |
| | C632 | CERAMIC CAPACITOR | CKDYF473Z50 |
| | C633 | MYLOR FILM CAPACITOR | CQMA562K50 |
| | C634 | AUDIO FILM CAPACITOR | CFTXA563J50 |
| | C635 | ELECTR. CAPACITOR | CEAS222M16 |
| | C636 | MYLOR FILM CAPACITOR | CQMA152K50 |
| | C637, 638 | AUDIO FILM CAPACITOR | CFTXA123J50 |
| | C639 | AUDIO FILM CAPACITOR | CFTXA104J50 |
| | C640, 641 | CERAMIC CAPACITOR | CKMYB561K50 |
| | C642 | ELECTR. CAPACITOR | CEAS470M10 |
| | C643 | MYLOR FILM CAPACITOR | CQMA272K50 |
| | C644 | AUDIO FILM CAPACITOR | CFTXA273J50 |
| | C645 | PL. STYRENE CAPACITOR | CQSA681J50 |
| | C646 | MYLOR FILM CAPACITOR | CQMA682K50 |
| | C647, 648 | ELECTR. CAPACITOR | CEAS2R2M50 |
| | C649 | CERAMIC CAPACITOR | CKDYF473Z50 |
| | C650 | ELECTR. CAPACITOR | CEAS100M50 |
| | C651 | ELECTROLYTIC CAPACIT | CEAS330M25 |
| | C652 | ELECTR. CAPACITOR | CEAS470M50 |
| | C653 | ELECTR. CAPACITOR | CEAS2R2M50 |
| | C654 | ELECTROLYTIC CAPACIT | CEAS102M6 |
| | C655 | ELECTR. CAPACITOR | CEAS2R2M50 |
| | C656 | ELECTR. CAPACITOR | CEAS222M35 |
| | C657 | ELECTR. CAPACITOR | CEAS330M25 |
| | C658 | AUDIO FILM CAPACITOR | CFTXA124J50 |

## AV I/O-3P•Y/C SEP ASSEMBLY (AWZ3529)

### SEMICONDUCTORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
|  | IC571 | AV SELECTOR IC | PA0040 |
|  | IC572 | LOGIC IC | TC4066BP |
|  | Q571 | TRANSISTOR | 2SA933S |
|  | Q572, 573 | TRANSISTOR | 2SC1740S |
|  | Q574-578 | TRANSISTOR | 2SA933S |
|  | Q579 | TRANSISTOR | 2SC1740S |
|  | Q580 | TRANSISTOR | 2SA933S |
|  | Q581 | TRANSISTOR | 2SC1740S |
|  | Q582 | TRANSISTOR | 2SA933S |
|  | Q583-587 | TRANSISTOR | 2SC1740S |
|  | Q590-592 | TRANSISTOR | 2SC1740S |
|  | Q593 | TRANSISTOR | RN1203 |
|  | D571 | DIODE | 1SS252 |
|  | D573-577 | DIODE | 1SS252 |

### COILS

| Mark | No. | Description | Part No. |
|---|---|---|---|
|  | L571 | AXIAL INDUCTOR | LAU820K |
|  | L572, 573 | AXIAL INDUCTOR | LAU150J |
|  | L575 | COIL | ATG1006 |

### CAPACITORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
|  | C951-954 | ELECTR. CAPACITOR | CEAS010M50 |
|  | C955, 956 | ELECTR. CAPACITOR | CEJA010M50 |
|  | C957 | ELECTR. CAPACITOR | CEAS102M10 |
|  | C958 | ELECTR. CAPACITOR | CEAS2R2M50 |
|  | C959, 960 | ELECTR. CAPACITOR | CEAS220M16 |
|  | C961 | ELECTR. CAPACITOR | CEJA220M10 |
|  | C962 | ELECTR. CAPACITOR | CEAS2R2M50 |
|  | C963 | ELECTR. CAPACITOR | CEAS102M10 |
|  | C964 | ELECTR. CAPACITOR | CEAS101M16 |
|  | C965, 966 | ELECTR. CAPACITOR | CEAS220M16 |
|  | C968-970 | ELECTR. CAPACITOR | CEAS010M50 |
|  | C971 | ELECTR. CAPACITOR | CEAS220M16 |
|  | C972 | ELECTR. CAPACITOR | CEAS010M50 |
|  | C974 | ELECTR. CAPACITOR | CEAS222M16 |
|  | C975, 976 | CERAMIC CAPACITOR | CKCYF103Z50 |
|  | C977 | ELECTR. CAPACITOR | CEAS100M50 |
|  | C978, 979 | CERAMIC CAPACITOR | CKCYF103Z50 |
|  | C980 | ELECTR. CAPACITOR | CEAS101M10 |
|  | C981 | CERAMIC CAPACITOR | CKCYF103Z50 |
|  | C982 | ELECTR. CAPACITOR | CEANPR22M50 |
|  | C983 | CERAMIC CAPACITOR | CKCYF102Z50 |
|  | C984 | CERAMIC CAPACITOR | CCCSL390J50 |
|  | C985 | ELECTR. CAPACITOR | CEJA100M16 |
|  | C986 | ELECTR. CAPACITOR | CEAS101M10 |
|  | C987 | ELECTR. CAPACITOR | CEAS330M16 |
|  | C988 | ELECTR. CAPACITOR | CEAS010M50 |
|  | C989 | ELECTR. CAPACITOR | CEAS220M16 |
|  | C990 | CERAMIC CAPACITOR | CKCYF103Z50 |
|  | C991 | CERAMIC CAPACITOR | CKCYF102Z50 |
|  | C992 | CERAMIC CAPACITOR | CKCYF103Z50 |
|  | C993 | CERAMIC CAPACITOR | CCCSL151J50 |
|  | C994 | CERAMIC CAPACITOR | CKDYF103Z50 |
|  | C995 | ELECTR. CAPACITOR | CEAS330M16 |
|  | C996 | CERAMIC CAPACITOR | CKDYF103Z50 |
|  | C997 | ELECTR. CAPACITOR | CEAS330M16 |

### RESISTORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
|  | VR571 | VR | ACP1040 |
|  | R1651 | METAL OXIDE RESISTOR | RS3LMF560J |
|  | R1652-1654 | CARBONFILMRESISTOR | RD1/2PMFL□□□J |
|  |  | OTHER RESISTORS | RD1/8PM□□□J |

### OTHERS

| Mark | No. | Description | Part No. |
|---|---|---|---|
|  |  | PIN JACK(12P) | AKB1094 |
|  |  | PIN JACK(3P) | AKB1102 |
|  |  | JACK | AKN-207 |
|  | DL571 | GLASS DELAY LINE | ATN1011 |

## FRONT CONTROL ASSEMBLY (AWZ3540)

### SEMICONDUCTORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
|  | IC551 | MCU | PD5136 |
|  | Q551 | TRANSISTOR | 2SC1740S |
|  | D551 | LED(GREEN) | AEL-459 |
|  | D552 | ZENER DIODE | RD3.0ESB |
|  | D553, 554 | DIODE | 1SS252 |

### SWITCHES

| Mark | No. | Description | Part No. |
|---|---|---|---|
|  | S551-566 | SWITCH<br>(POWER, PRESET MENU, DIGITAL PINP(INPUT, ON/OFF), PRESET MENU (ON/OFF, SELECT ADJ(+, -),SET), FACTORY ADJ, DPO, STD/AV MEM, VOLUME(+, -), CHANNEL(+, -), INPUT SELECTOR) | ASG1034 |

### CAPACITORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
|  | C671 | ELECTR. CAPACITOR | CEJA2R2M50 |
|  | C672 | CERAMIC CAPACITOR | CGMYX103M16 |
|  | C673 | AUDIO FILM CAPACITOR | CFTXA104J50 |
|  | C674, 675 | CERAMIC CAPACITOR | CCDCH221J50 |
|  | C676 | CERAMIC CAPACITOR | CKMYF472Z50 |
|  | C677 | ELECTROLYTIC CAPACIT | CEJA330M16 |
|  | C680 | ELECTROLYTIC CAPACIT | CEJA100M25 |

### RESISTORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
|  | VR551 | VR(47KΩ) | VRTB6VS473 |
|  | R1226 | CARBON FILM RESISTOR | RD1/2PMF820J |
|  |  | OTHER RESISTORS | RD1/8PM□□□J |

### OTHERS

| Mark | No. | Description | Part No. |
|---|---|---|---|
|  | PC551 | CdS | U5C-08SC |
|  | X551 | CERAMIC OSCILLATOR | ASS1043 |

## G.CRT DRIVE ASSEMBLY (AWZ3525)

### SEMICONDUCTORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | Q821 | TRANSISTOR | 2SC2278 |
| | D821 | DIODE | 1SS252 |

### COILS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | L821, 822 | AXIAL INDUCTOR | LAU470K |
| | L823 | AXIAL INDUCTOR | LAU101K |

### CAPACITORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | C931 | ELECTR. CAPACITOR | CEAS101M16 |
| | C932 | CERAMIC CAPACITOR | CKCYB681K50 |
| | C933 | ELECTR. CAPACITOR (4.7μ/250V) | ACH-378 |
| | C934 | CERAMIC CAPACITOR (1000p/2KV) | ACG1001 |

### RESISTORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | R761 | CARBONFILM RESISTOR | RD1/8PM103J |
| | R762 | RESISTOR(1K, 1/2W) | ACN1006 |
| | R763, 764 | METAL OXIDE RESISTOR | RS3LMF332J |
| | R765 | RESISTOR(47, 1/2W) | ACN-225 |

### OTHERS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | | CRT SOCKET | AKG1004 |

## B.CRT DRIVE ASSEMBLY (AWZ3526)

### SEMICONDUCTORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | Q841 | TRANSISTOR | 2SC2278 |
| | D841 | DIODE | 1SS252 |

### COILS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | L841, 842 | AXIAL INDUCTOR | LAU470K |
| | L843 | AXIAL INDUCTOR | LAU101K |

### CAPACITORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | C941 | ELECTR. CAPACITOR | CEAS101M16 |
| | C942 | CERAMIC CAPACITOR | CKCYB681K50 |
| | C943 | ELECTR. CAPACITOR (4.7μ/250V) | ACH-378 |
| | C944 | CERAMIC CAPACITOR (1000p/2KV) | ACG1001 |

### RESISTORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | R771 | CARBONFILM RESISTOR | RD1/8PM103J |
| | R772 | RESISTOR(1K, 1/2W) | ACN1006 |
| | R773, 774 | METAL OXIDE RESISTOR | RS3LMF332J |
| | R775 | RESISTOR(47, 1/2W) | ACN-225 |

### OTHERS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | | CRT SOCKET | AKG1004 |

## S – 3P TERMINAL ASSEMBLY (AWZ3532)

### CAPACITORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | C946 | CERAMIC CAPACITOR | CKDYF103Z50 |
| | C947 | ELECTR. CAPACITOR | CEAS220M16 |
| | C948 | CERAMIC CAPACITOR | CKDYF103Z50 |
| | C949 | ELECTR. CAPACITOR | CEAS220M16 |
| | C950 | CERAMIC CAPACITOR | CKDYF103Z50 |
| | C998 | ELECTR. CAPACITOR | CEAS220M16 |

### RESISTORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | R1630-1635 | CARBONFILM RESISTOR | RD1/8PM750J |

### OTHERS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | | SOCKET | AKP1065 |

## PINP SELECT ASSEMBLY (AWZ3534)

### SEMICONDUCTORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | IC461, 462 | E-SW IC | NJM2235S |
| | Q461 | TRANSISTOR | 2SA933S |
| | D461-470 | DIODE | 1SS252 |

### CAPACITORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | C561 | ELECTR. CAPACITOR | CEAS100M50 |
| | C562 | CERAMIC CAPACITOR | CKCYF103Z50 |
| | C563-566 | ELECTR. CAPACITOR | CEAS100M50 |
| | C567 | CERAMIC CAPACITOR | CKCYF103Z50 |
| | C568 | ELECTR. CAPACITOR | CEAS100M50 |
| | C569 | ELECTR. CAPACITOR | CEAS101M16 |

### RESISTORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | | ALL RESISTORS | RD1/8PM□□□J |

## CONVERGENCE ASSEMBLY (AWZ3523)

### SEMICONDUCTORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | IC601 | TV IC | PA0036 |
| | IC602 | REGULATOR IC | UPC78L12J |
| | IC603 | REGULATOR IC | NJM79L15A |
| | IC604-606 | OP AMP | M5238LF |
| | IC607 | TV HIC | STK4277-SL |
| | D601 | ZENER DIODE | HZS9A2L |
| | D602-604 | DIODE | 1SS252 |
| | D605 | ZENER DIODE | RD5.1ESB2 |
| | D606 | DIODE | 1SS252 |
| | D607 | ZENER DIODE | RD5.1ESB2 |
| | D608 | ZENER DIODE | HZS12BL |
| | D609-623 | ZENER DIODE | RD27ESB2 |

### CAPACITORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | C691 | ELECTR. CAPACITOR | CEASR33M50 |
| | C692 | ELECTR. CAPACITOR | CEAS010M50 |
| | C694 | MYLOR FILM CAPACITOR | CQMA821J50 |
| | C695 | ELECTR. CAPACITOR | CEAS010M50 |
| | C696 | ELECTR. CAPACITOR | CEAS100M50 |
| | C697 | MYLOR FILM CAPACITOR | CQMA224J50 |
| | C698 | ELECTR. CAPACITOR | CEASR33M50 |
| | C699 | ELECTR. CAPACITOR | CEAS100M50 |
| | C700 | ELECTR. CAPACITOR | CEAS010M50 |
| | C701 | CERAMIC CAPACITOR | CKDYF473Z50 |
| | C702 | ELECTR. CAPACITOR | CEAS100M50 |
| | C703 | MYLOR FILM CAPACITOR | CQMA332J50 |
| | C704 | MYLOR FILM CAPACITOR | CQMA224J50 |
| | C705 | ELECTR. CAPACITOR | CEAS2R2M50 |
| | C706 | PL. STYRENE CAPACITOR | CQSA152J50 |
| | C707 | ELECTR. CAPACITOR | CEAS2R2M50 |
| | C708 | MYLOR FILM CAPACITOR | CQMA681J50 |
| | C709 | MYLOR FILM CAPACITOR | CQMA471J50 |
| | C710, 711 | CERAMIC CAPACITOR | CKDYF473Z50 |
| | C712 | PL. STYRENE CAPACITOR | CQSA102J50 |
| | C713, 714 | ELECTROLYTIC CAPACIT | CEAS102M6 |
| | C715 | ELECTR. CAPACITOR | CEANP010M50 |
| | C716 | ELECTR. CAPACITOR | CEAS101M16 |
| | C717-719 | CERAMIC CAPACITOR | CKDYF473Z50 |
| | C720 | ELECTR. CAPACITOR | CEAS101M16 |
| | C721, 722 | ELECTR. CAPACITOR | CEAS100M50 |
| | C723-726 | CERAMIC CAPACITOR | CCMSL470J50 |
| | C727, 728 | ELECTR. CAPACITOR | CEAS221M10 |
| | C729 | CERAMIC CAPACITOR | CCMSL470J50 |
| | C730-732 | ELECTR. CAPACITOR | CEAS221M10 |
| | C733 | CERAMIC CAPACITOR | CCMSL470J50 |
| | C734 | CERAMIC CAPACITOR | CKDYF473Z50 |
| | C735 | ELECTR. CAPACITOR | CEAS221M10 |
| | C736, 737 | CERAMIC CAPACITOR | CKDYF473Z50 |
| | C738, 739 | ELECTR. CAPACITOR | CEAS221M10 |
| | C740 | CERAMIC CAPACITOR | CCMSL470J50 |
| | C741, 742 | ELECTR. CAPACITOR | CEAS221M10 |
| | C743 | ELECTROLYTIC CAPACIT | CEHAQ471M35 |
| | C744 | CERAMIC CAPACITOR | CKDYF473Z50 |
| | C745 | ELECTROLYTIC CAPACIT | CEHAQ471M35 |
| | C746 | CERAMIC CAPACITOR | CKDYF473Z50 |
| | C747 | CERAMIC CAPACITOR | CCMSL470J50 |
| | C748-750 | CERAMIC CAPACITOR | CKDYF473Z50 |
| | C751 | CERAMIC CAPACITOR | CCMSL470J50 |

### RESISTORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | VR601 | VR (10KΩ) | ACP1043 |
| | VR602, 603 | VR (47KΩ) | ACP1045 |
| | VR604 | VR (220KΩ) | ACP1047 |
| | VR605-607 | VR (4.7KΩ) | ACP1042 |
| | VR608 | VR (22KΩ) | ACP1044 |
| | VR609-640 | VR (4.7KΩ) | ACP1042 |
| | R303 | CARBON FILM RESISTOR | RD1/4PMFL361J |
| | R313 | CARBON FILM RESISTOR | RD1/4PMFL101J |
| | R314, 315 | CEMENT RESISTOR (4.7.5W) | ACN1059 |
| | R322 | METAL OXIDE RESISTOR | RS2LMF121J |
| | R325 | METAL OXIDE RESISTOR | RS2LMF151J |
| | R520 | METAL OXIDE RESISTOR | RS2LMF6R8J |
| | R522-525 | METAL OXIDE RESISTOR | RS2LMF6R8J |
| | R526, 527 | METAL OXIDE RESISTOR | RS2LMF101J |
| | R528 | METAL OXIDE RESISTOR | RS2LMF220J |
| | | OTHER RESISTORS | RD1/8PM□□□J |

## R.CRT DRIVE ASSEMBLY (AWZ3524)

### SEMICONDUCTORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | Q801 | TRANSISTOR | 2SC2278 |
| | D801 | DIODE | 1SS252 |

### COILS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | L801, 802 | AXIAL INDUCTOR | LAU470K |
| | L803 | AXIAL INDUCTOR | LAU101K |

### CAPACITORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | C921 | ELECTR. CAPACITOR | CEAS101M16 |
| | C922 | CERAMIC CAPACITOR | CKCYB681K50 |
| | C923 | ELECTR. CAPACITOR (4.7μ/250V) | ACH-378 |
| | C924 | CERAMIC CAPACITOR (1000p/2KV) | ACG1001 |

### RESISTORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | R751 | CARBONFILM RESISTOR | RD1/8PM103J |
| | R752 | RESISTOR(1K, 1/2W) | ACN1006 |
| | R753, 754 | METAL OXIDE RESISTOR | RS3LMF332J |
| | R755 | RESISTOR(47, 1/2W) | ACN-225 |

### OTHERS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | | CRT SOCKET | AKG1004 |

| Mark | No. | Description | Part No. |
|---|---|---|---|
|  | C489 | CER. CAP. (1000P/2KV) | ACG-040 |
|  | C490 | ELECTR. CAPACITOR (4.7μ/250V) | ACH-378 |
|  | C491 | CERAMIC CAPACITOR | CCDSL221K500 |
|  | C492 | AUDIO FILM CAPACITOR | CFTXA474J50 |
|  | C493 | ELECTR. CAPACITOR (47μ/100V) | ACH1132 |
|  | C494 | CERAMIC CAPACITOR | CCDSL221K500 |
|  | C495 | CER. CAP. (1000P/2KV) | ACG-040 |
|  | C496 | CERAMIC CAPACITOR | CKCYF103Z50 |
|  | C497 | MYLOR FILM CAPACITOR | CQMA822J50 |
|  | C498 | ELECTR. CAPACITOR | CEHAQ010M50 |
|  | C499 | CER. CAP. (3300p/2KV) | ACG1008 |
|  | C500-503 | CERAMIC CAPACITOR | CCDSL221K500 |
|  | C504 | CCA (100P/2KV) | ACG-032 |
|  | C505, 506 | ELECTR. CAPACITOR | CEHAQ222M35 |
|  | C507 | ELECTR. CAPACITOR (3300μ/50V) | ACH1165 |
|  | C508 | ELECTR. CAPACITOR | CEHAQ222M50 |
|  | C509 | ELECTR. CAPACITOR (560μ/160V) | ACH1146 |
|  | C510 | ELECTROLYTIC CAPACIT | CEHAQ332M35 |
|  | C511 | CERAMIC CAPACITOR | CKDYF103Z500 |
|  | C512, 513 | CERAMIC CAPACITOR | CKCYF473Z50 |
|  | C514 | ELECTROLYTIC CAPACIT | CEHAQ331M35 |
|  | C515 | CERAMIC CAPACITOR | CKDYF103Z500 |
|  | C516 | CERAMIC CAPACITOR | CKCYF473Z50 |
|  | C517, 518 | ELECTR. CAPACITOR | CEHAQ100M50 |
|  | C519 | CERAMIC CAPACITOR | CKCYB681K50 |
|  | C520 | ELECTR. CAPACITOR | CEHAQ010M50 |
|  | C521 | ELECTR. CAPACITOR | CEHAQ100M50 |
|  | C522 | ELECTR. CAPACITOR | CEAS221M16 |
|  | C523 | CERAMIC CAPACITOR | CKCYF473Z50 |
|  | C526 | ELECTROLYTIC CAPACIT | CEHAQ471M16 |

## RESISTORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| × | VR351 | VR |  |
| × | VR352 | VR |  |
|  | VR401 | VR(1KΩ) | VRTS6VS102 |
|  | R102 | CARBONFILM RESISTOR | RD1/4PMFL3R9J |
| × | R105 | CARBONFILM RESISTOR |  |
| × | R106 | CARBONFILM RESISTOR |  |
| × | R107 | CARBONFILM RESISTOR |  |
| × | R108 | CARBONFILM RESISTOR |  |
| × | R109 | CARBONFILM RESISTOR |  |
|  | R110 | CARBONFILM RESISTOR | RD1/8PM122J |
| × | R111 | CARBONFILM RESISTOR |  |
| × | R112 | CARBONFILM RESISTOR |  |
| × | R113 | CARBONFILM RESISTOR |  |
|  | R115 | CARBON FILM RESISTOR | RD1/4PMFL3R9J |
| × | R116 | CARBONFILM RESISTOR |  |
| × | R117 | CARBONFILM RESISTOR |  |
|  | R118 | CARBON FILM RESISTOR | RD1/4PMFL470J |
| × | R120 | CARBONFILM RESISTOR |  |
| × | R121 | CARBONFILM RESISTOR |  |
|  | R123 | CARBON FILM RESISTOR | RD1/2PM361J |
|  | R126 | METAL OXIDE RESISTOR | RS3PMFR68J |
| × | R131 | CARBONFILM RESISTOR |  |
|  | R132 | METAL OXIDE RESISTOR | RS3PMF562J |
|  | R134 | CARBON FILM RESISTOR | RD1/2PMFL222J |
| × | R135 | CARBON FILM RESISTOR |  |
|  | R137 | CARBON FILM RESISTOR | RD1/4PMFL471J |
| × | R138 | METALFILM RESISTOR |  |
|  | R139 | CARBON FILM RESISTOR | RD1/4PMFL470J |
|  | R141 | CARBON FILM RESISTOR | RD1/2PM102J |
| × | R142 | CARBONFILM RESISTOR |  |
|  | R143 | METAL OXIDE RESISTOR | RS3PMFR68J |
|  | R144 | CARBON FILM RESISTOR | RD1/4PMFL2R2J |
|  | R145 | METAL OXIDE RESISTOR | RS1PMF220J |
|  | R149 | CARBONFILM RESISTOR | RD1/2PM122J |
| ⚠ | R150, 151 | METALFILM RESISTER | RN1/2PC□□□□F |
|  | R152 | RESISTOR(47, 1/2W) | ACN-225 |
|  | R202, 203 | RESISTOR(2.2M, 1/2W) | ACN-208 |
|  | R211, 216 | RESISTOR (1.0, 5W) | ACN1032 |
|  | R219 | METAL OXIDE RESISTOR | RS1LMF473J |
|  | R220, 221 | METAL OXIDE RESISTOR | RS2LMFR33J |
|  | R223, 224 | CARBON FILM RESISTOR | RD1/4PMFL□□□J |
|  | R225 | METAL OXIDE RESISTOR | RS3LMF2R2J |
|  | R226 | RESISTOR(6.8, 10W) | RT10PD6R8K |
|  | R227 | METAL OXIDE RESISTOR | RS3LMF2R2J |
|  | R228, 230 | CARBONFILM RESISTOR | RD1/2PM□□□J |
|  | R232 | METALFILM RESISTOR | RD1/2PM101J |
|  | R233, 234 | METALFILM RESISTOR | RN1/4PC□□□□F |
|  | R236 | METALFILM RESISTOR | RN1/4PC1603F |
|  | R241 | METAL OXIDE RESISTOR | RS2LMF223J |
|  | R242, 243 | CEMENT RESISTOR (18, 10W) | ACN1057 |
|  | R244 | METAL OXIDE RESISTOR | RS1LMF272J |
|  | R245 | RESISTOR (1.0, 5W) | ACN1032 |
|  | R258, 259 | METALFILM RESISTER | RN1/4PC□□□□F |
|  |  | OTHER RESISTORS | RD1/8PM□□□J |

## OTHERS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| ⚠ | FU401 | FUSE(8A) | AEK1002 |
|  |  | MICA SHEET | AEP-056 |

## ☆ POWER SUPPLY ASSEMBLY (AWV1203)

### SEMICONDUCTORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | IC351 | | RC4558DXP |
| | IC401, 402 | PHOTOCOUPLER | ON3161-Q |
| × | Q351, 352 | TRANSISTOR | |
| | Q353 | TRANSISTOR | 2SC2705 |
| | Q354 | TRANSISTOR | 2SA1145 |
| | Q355 | TRANSISTOR | 2SC3332 |
| | Q356 | TRANSISTOR | 2SD1276A |
| ⚠ | Q357 | TRANSISTOR | 2SD1911(D) |
| | Q358 | TRANSISTOR | 2SC1740S |
| | Q359 | TRANSISTOR | 2SA1145 |
| | Q401 | TRANSISTOR | 2SA933S |
| | Q402-404 | TRANSISTOR | 2SC1740S |
| | Q405 | TRANSISTOR | 2SC3451(D) |
| | Q406 | TRANSISTOR | 2SB824 |
| | Q407 | TRANSISTOR | 2SC1740S |
| | Q408 | TRANSISTOR | 2SC2705 |
| | Q410 | TRANSISTOR | 2SD1276A |
| | Q411 | TRANSISTOR | 2SA933S |
| | Q412 | TRANSISTOR | 2SD1276A |
| | Q413 | TRANSISTOR | 2SC1740S |
| × | D351, 352 | ZENER DIODE | |
| | D353-355 | DIODE | 1SS252 |
| | D357 | DIODE | 11DF2FD |
| | D358 | DIODE | ES1F |
| | D359 | DIODE | RU1 |
| | D401, 402 | DIODE | 1SS145 |
| | D403 | ZENER DIODE | HZS6B1L |
| | D404, 405 | DIODE | 1SS145 |
| | D406 | DIODE | 1SS252 |
| | D407 | DIODE | RB604(A) |
| | D408-412 | DIODE | 1SS252 |
| | D414 | DIODE | 1SS252 |
| | D415 | DIODE | 11DF1FD |
| | D416 | DIODE | 1SS252 |
| | D417 | DIODE | 11DF1FD |
| | D418-420 | DIODE | 1SS252 |
| | D422 | ZENER DIODE | HZS6C2L |
| | D423 | DIODE | 1SS252 |
| | D424 | DIODE | RL4Z(A) |
| | D425 | DIODE | FMP-G12S |
| | D426, 427 | DIODE | RL4Z(A) |
| | D428 | DIODE | RG4A(A) |
| | D429 | ZENER DIODE | HZS6A1L |
| | D430 | ZENER DIODE | HZS6B1L |
| | D431 | ZENER DIODE | HZS18-1L |
| | D432 | ZENER DIODE | HZS6B1L |
| | D433 | DIODE | RL2Z |

### RELAY

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | RY403 | RELAY | ASR1036 |
| | RY404 | RELAY | ASR1027 |

### COILS AND TRANSFORMERS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | L351 | INDUCTOR | LTA272J |
| | L401, 402 | LINE FILTER | ATF1031 |
| | L403 | COIL (1μH) | ATH-133 |
| | L404-409 | FERRITE BEAD | ATX-028 |
| | L412-415 | FERRITE BEAD | ATX-028 |
| | T351 | H. DRIVE TRANSFORMER | ATK1045 |
| ×⚠ | T352 | CONVERTER TRANS | |
| ⚠ | T401 | POWER TRANSFORMER | ATT1120 |
| ⚠ | T402 | CONVERTER TRANS | ATK1058 |

### CAPACITORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | C441 | CERAMIC CAPACITOR | CKCYB222K50 |
| | C442 | CERAMIC CAPACITOR | CKCYF473Z50 |
| | C443 | ELECTROLYTIC CAPACIT | CEHAQ221M16 |
| | C444 | ELECTROLYTIC CAPACIT | CEHAQ100M25 |
| | C445 | ELECTROLYTIC CAPACIT | CEHAQ221M10 |
| | C446 | CERAMIC CAPACITOR | CKCYB102K50 |
| | C447 | ELECTR. CAPACITOR | CEHAQ010M50 |
| | C448 | CERAMIC CAPACITOR | CKCYF103Z50 |
| | C449 | ELECTROLYTIC CAPACIT | CEHAQ221M10 |
| | C450 | ELECTROLYTIC CAPACIT | CEHAQ100M2C |
| | C451 | CERAMIC CAPACITOR | CCDSL101K500 |
| | C452 | ELECTROLYTIC CAPACIT | CEHAQ220M16 |
| | C453 | CERAMIC CAPACITOR | CKCYF222Z500 |
| | C454 | CERAMIC CAPACITOR | CCDSL101K500 |
| | C455 | CERAMIC CAPACITOR | CKCYB392K500 |
| | C456 | ELECTROLYTIC CAPACIT | CEHAQ4R7M50 |
| | C457 | ELE. CAP. (10μ160V) | ACH1117 |
| | C458 | ELECTR. CAPACITOR | CEHAQ100M50 |
| | C459 | ELECTROLYTIC CAPACIT | CEHAQ220M2C |
| | C460 | CER. CAP. (680P/2KV) | ACG1024 |
| ⚠ | C461 | CAPACITOR | CFPHW123H3D |
| | C462 | ELECTROLYTIC CAPACIT | CEHAQ220M25 |
| | C463 | CERAMIC CAPACITOR | CKCYF473Z50 |
| | C465 | CERAMIC CAPACITOR | CKCYB681K50 |
| | C468 | CERAMIC CAPACITOR | CKCYF103Z50 |
| | C469 | CERAMIC CAPACITOR | CCDSL101K500 |
| | C472, 473 | FLM CAP. (0.1/250V) | ACE-507 |
| | C474 | ELECTROLYTIC CAPACIT | CEHAQ102M25 |
| | C475 | CERAMIC CAPACITOR | CKCYF103Z50 |
| | C476, 477 | FLM CAP. (6800P/250V) | ACE1009 |
| | C478 | ELECTR. CAPACITOR | CEAS470M25 |
| | C479, 480 | FLM CAP. (6800P/250V) | ACE1009 |
| | C481, 482 | CER CAP(0.01/AC250V) | ACG-001 |
| | C483 | ELECTR. CAPACITOR | CEAS100M50 |
| | C484, 485 | CER CAP(0.01/AC250V) | ACG-001 |
| | C486 | ELECTR. CAPACITOR | CEAS470M25 |
| | C487 | ELECTR. CAPACITOR (470μ/200V) | ACH1147 |
| | C488 | ELECTR. CAPACITOR (820μ/200V) | ACH1148 |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | C341 | ELECTR. CAPACITOR | CEASR47M50 |
| | C342 | ELECTR. CAPACITOR | CEAS470M16 |
| | C343 | CERAMIC CAPACITOR | CKDYB102K50 |
| | C344 | CERAMIC CAPACITOR | CCDRH270J50 |
| | C345 | ELECTR. CAPACITOR | CEAS470M16 |
| | C346 | ELECTR. CAPACITOR | CEAS100M50 |
| | C347, 348 | CERAMIC CAPACITOR | CKDYF103Z50 |
| | C349 | ELECTR. CAPACITOR | CEAS470M16 |
| | C350 | ELECTR. CAPACITOR | CEAS010M50 |
| | C351 | CERAMIC CAPACITOR | CKDYB102K50 |
| | C352 | ELECTR. CAPACITOR | CEAS331M16 |
| | C353 | ELECTR. CAPACITOR | CEAS470M16 |
| | C354 | CERAMIC CAPACITOR | CKDYF103Z50 |
| | C355 | CERAMIC CAPACITOR | CKDYF473Z50 |
| | C356 | CERAMIC CAPACITOR | CCDCH050C50 |
| | C357 | MYLOR FILM CAPACITOR | CQMA272J50 |
| | C358 | CERAMIC CAPACITOR | CKDYF473Z50 |
| | C359 | CERAMIC CAPACITOR | CKDYF103Z50 |
| | C360 | CERAMIC CAPACITOR | CKDYB102K50 |
| | C361 | ELECTR. CAPACITOR | CEANP4R7M35 |
| | C362 | CERAMIC CAPACITOR | CKDYB222K50 |
| | C363 | CERAMIC CAPACITOR | CKDYB102K50 |
| | C364 | ELECTR. CAPACITOR (10 μ 50V) | ACH1129 |
| | C365 | ELECTR. CAPACITOR | CEAS470M16 |
| | C366 | CERAMIC CAPACITOR | CKDYB222K50 |
| | C368 | MYLOR FILM CAPACITOR | CQMA563J50 |
| | C369 | ELECTR. CAPACITOR | CEAS2R2M50 |
| | C370 | ELECTR. CAPACITOR | CEAS010M50 |
| | C371 | CERAMIC CAPACITOR | CKDYB222K50 |
| | C372 | ELECTR. CAPACITOR (3. 3 μ /50V) | ACH1128 |
| | C373 | CERAMIC CAPACITOR | CKDYB102K50 |
| | C374 | MYLOR FILM CAPACITOR | CQMA103J50 |
| | C375 | ELECTR. CAPACITOR | CEAS2R2M50 |
| | C376 | ELECTR. CAPACITOR | CEAS4R7M50 |
| | C378, 379 | ELECTR. CAPACITOR | CEAS4R7M50 |
| | C380 | AUDIO FILM CAPACITOR | CFTXA473J50 |
| | C381 | CERAMIC CAPACITOR | CKDYF473Z50 |
| | C382, 383 | ELECTR. CAPACITOR | CEAS330M16 |
| | C391 | CERAMIC CAPACITOR | CCDCH390J50 |
| | C392 | CERAMIC CAPACITOR | CCDCH820J50 |
| | C393, 394 | CERAMIC CAPACITOR | CKDYF473Z50 |
| | C395-401 | ELECTR. CAPACITOR | CEAS010M50 |
| | C402 | CERAMIC CAPACITOR | CKDYB102K50 |
| | C403 | ELECTR. CAPACITOR | CEAS100M50 |
| | C404 | ELECTR. CAPACITOR | CEAS330M16 |
| | C405 | ELECTR. CAPACITOR | CEAS101M10 |
| | C406 | ELECTR. CAPACITOR | CEAS010M50 |
| | C408-414 | ELECTR. CAPACITOR | CEAS2R2M50 |
| | C417 | CERAMIC CAPACITOR | CKDYF103Z50 |
| | C420 | CERAMIC CAPACITOR | CKDYF473Z50 |
| | C422 | CERAMIC CAPACITOR | CKDYF103Z50 |
| | C423 | CERAMIC CAPACITOR | CKDYB222K50 |
| | C424-426 | CERAMIC CAPACITOR | CKDYF473Z50 |
| | C429 | CERAMIC CAPACITOR | CKDYF103Z50 |
| | C430, 435 | CERAMIC CAPACITOR | CKDYF473Z50 |
| | C428 | CERAMIC CAPACITOR | CKDYF473Z50 |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | C437 | CERAMIC CAPACITOR | CKDYF103Z50 |
| | C438 | MYLOR FILM CAPACITOR | CQMA562J50 |
| | C439 | CERAMIC CAPACITOR | CKDYF103Z50 |

## RESISTORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | VR101 | VR (100Ω) | VRTB6VS101 |
| | VR102 | VR (220Ω) | ACP1038 |
| | VR103 | VR (100Ω) | ACP1037 |
| | VR104 | VR (4. 7KΩ) | ACP1042 |
| | VR201 | VR (2. 2kΩ) | VRTB6VS222 |
| | VR251, 252 | VR (4. 7KΩ) | ACP1042 |
| | VR253 | VR (10KΩ) | ACP1043 |
| | VR254, 255 | VR (47KΩ) | ACP1045 |
| | R226 | CARBON FILM RESISTOR | RD1/2PMF101J |
| | R388, 389 | CARBONFILM RESISTOR | RD1/2PM271J |
| | R385 | CARBONFILM RESISTOR | RD1/2PM271J |
| | R467, 478 | CARBONFILM RESISTOR | RD1/2PM271J |
| | R514, 515 | METALFILM RESISTOR | RN1/4PC□□□□F |
| | R522 | CARBON FILM RESISTOR | RD1/4PM221J |
| | R524 | METALFILM RESISTOR | RN1/4PC4302F |
| | R530, 535 | METALFILM RESISTOR | RN1/4PC4702F |
| | R560 | CARBON FILM RESISTOR | RD1/4PM391J |
| | R631 | CARBON FILM RESISTOR | RD1/4PMFL3R9J |
| | R632, 633 | METAL OXIDE RESISTOR | RS2LMF□□□J |
| | R635, 637 | METAL OXIDE RESISTOR | RS1LMF010J |
| | R638, 640 | METAL OXIDE RESISTOR | RS1LMF010J |
| | R641 | CARBON FILM RESISTOR | RD1/2PMFL4R7J |
| | R671, 683 | CARBON FILM RESISTOR | RD1/4PMFL□□□J |
| | R685 | METAL OXIDE RESISTOR | RS2LMF010J |
| | R686 | CARBON FILM RESISTOR | RD1/2PM151J |
| | R689 | CARBON FILM RESISTOR | RD1/4PMFL682J |
| | R690 | CARBONFILM RESISTOR | RD1/2PM471J |
| | R694 | CARBON FILM RESISTOR | RD1/4PMFL102J |
| | R699 | METAL OXIDE RESISTOR | RS1LMF010J |
| | R700 | CARBON FILM RESISTOR | RD1/2PMFL103J |
| | R702, 703 | METAL OXIDE RESISTOR | RS1PMF470J |
| | R704-706 | RESISTOR(100K, 1/2W) | ACN1074 |
| | R708 | METAL OXIDE RESISTOR | RS2LMF153J |
| | R781 | CARBON FILM RESISTOR | RD1/4PMFL3R2J |
| | R782, 783 | CARBONFILM RESISTOR | RD1/2PMFL□□□J |
| | R784 | METAL OXIDE RESISTOR | RS2LMF560J |
| | R791, 792 | CARBON FILM RESISTOR | RD1/4PMF□□□J |
| | R793 | CARBON FILM RESISTOR | RD1/4PMF3R9J |
| | R960, 961 | RESISTOR ARRAY | RA8T103J |
| | R962 | RESISTOR ARRAY(10K) | RA4T103J |
| | R963, 964 | RESISTOR ARRAY | RA4T472J |
| | | OTHER RESISTORS | RD1/8PM□□□J |

## OTHERS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | X101 | CRYSTAL RESONATOR (3. 579545MHz) | ASS-028 |
| | X102 | CERAMIC RESONATOR | ASS1033 |
| | X301 | CERAMIC RESONATOR (4. 19MHz) | ASS1018 |
| | CN202-204 | PLUG 6-P | AKM1072 |
| | DL111 | DELAY LINE | ATN1013 |
| | DL115 | DELAY LINE | ATN1014 |
| | | TV FRONT END | AXF1048 |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | C152 | CERAMIC CAPACITOR | CCDSL101J50 |
| | C153, 154 | ELECTR. CAPACITOR | CEAS010M50 |
| | C155 | TANTALUM CAPACITOR | ACH1131 |
| | C156 | ELECTR. CAPACITOR | CEAS330M16 |
| | C157 | MYLOR FILM CAPACITOR | CQMA123J50 |
| | C158 | CERAMIC CAPACITOR | CCDSL221J50 |
| | C159 | ELECTR. CAPACITOR | CEAS330M16 |
| | C160 | ELECTR. CAPACITOR | CEAS010M50 |
| | C161 | CERAMIC CAPACITOR | CKDYF473Z50 |
| | C162 | ELECTR. CAPACITOR | CEAS330M16 |
| | C163 | ELECTR. CAPACITOR | CEAS470M16 |
| | C164 | ELECTR. CAPACITOR | CEASR47M50 |
| | C165 | CERAMIC CAPACITOR | CKDYF103Z50 |
| | C166 | MYLOR FILM CAPACITOR | CQMA333J50 |
| | C167 | CERAMIC CAPACITOR | CKDYF473Z50 |
| | C168 | ELECTR. CAPACITOR | CEANP010M50 |
| | C169 | ELECTR. CAPACITOR | CEAS100M50 |
| | C170 | ELECTR. CAPACITOR | CEAS2R2M50 |
| | C171 | CERAMIC CAPACITOR | CKDYF473Z50 |
| | C172 | ELECTR. CAPACITOR<br>(0.82μ/50V) | ACH-388 |
| | C173 | ELECTR. CAPACITOR | CEAS471M10 |
| | C174 | CERAMIC CAPACITOR | CKDYF473Z50 |
| | C175 | CERAMIC CAPACITOR | CCCCH100D50 |
| | C176 | MYLOR FILM CAPACITOR | CQMA223J50 |
| | C177 | ELECTR. CAPACITOR | CEHAQ100M50 |
| | C178 | CERAMIC CAPACITOR | CCDCH221J50 |
| | C179-181 | ELECTR. CAPACITOR | CEAS010M50 |
| | C182 | ELECTR. CAPACITOR | CEAS331M16 |
| | C183, 184 | ELECTROLYTIC CAPACIT | CEHAQ222M16 |
| | C185, 186 | ELECTR. CAPACITOR | CEAS101M16 |
| | C187 | CERAMIC CAPACITOR | CCDSL101J50 |
| | C188 | CERAMIC CAPACITOR | CKDYF473Z50 |
| | C189 | ELECTR. CAPACITOR | CEAS010M50 |
| | C194 | ELECTR. CAPACITOR | CEANP010M50 |
| | C195 | ELECTR. CAPACITOR | CEANP4R7M35 |
| | C196 | CERAMIC CAPACITOR | CCCSL180J50 |
| | C198, 199 | ELECTR. CAPACITOR | CEANP010M50 |
| | C200, 201 | ELECTR. CAPACITOR | CEAS100M50 |
| | C202, 203 | CERAMIC CAPACITOR | CKCYB391K50 |
| | C204 | CERAMIC CAPACITOR | CCDSL221J50 |
| | C205 | CERAMIC CAPACITOR | CKCYB331K50 |
| | C207 | CERAMIC CAPACITOR | CCCSL121J50 |
| | C211 | ELECTR. CAPACITOR | CEAS330M16 |
| | C212 | ELECTR. CAPACITOR | CEAS101M16 |
| | C213 | CERAMIC CAPACITOR | CCDSL101J50 |
| | C214 | ELECTR. CAPACITOR | CEAS101M10 |
| | C215 | CERAMIC CAPACITOR | CCDCH390J50 |
| | C216 | CERAMIC CAPACITOR | CCCSL680J50 |
| | C217 | ELECTR. CAPACITOR | CEAS330M16 |
| | C218 | CERAMIC CAPACITOR | CKDYF103Z50 |
| | C219 | ELECTR. CAPACITOR | CEAS101M16 |
| | C220 | CERAMIC CAPACITOR | CCDSL271J50 |
| | C221 | CERAMIC CAPACITOR | CCCSL271J50 |
| | C222 | ELECTR. CAPACITOR | CEAS330M16 |
| | C240 | ELECTR. CAPACITOR | CEANP010M50 |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | C251 | ELECTR. CAPACITOR | CEAS010M50 |
| | C252 | CERAMIC CAPACITOR | CKDYF473Z50 |
| | C253 | ELECTR. CAPACITOR | CEAS100M50 |
| | C254 | MYLOR FILM CAPACITOR | CQMA471J50 |
| | C255 | CERAMIC CAPACITOR | CCDSL101K500 |
| | C256 | ELECTROLYTIC CAPACIT | CEHAQ100M2C |
| | C257 | ELECTR. CAPACITOR | CEAS010M100 |
| | C258 | ELECTROLYTIC CAPACIT | CEHAQ330M16 |
| | C259 | CERAMIC CAPACITOR | CKDYB102K500 |
| | C260 | CERAMIC CAPACITOR | CCDSL101K500 |
| | C261 | ELECTR. CAPACITOR | CEHAQ010M50 |
| | C262 | ELE. CAP. (1/160V) | ACH-372 |
| | C263 | CER. CAP. (680P/2KV) | ACG1024 |
| | C264, 265 | CAPACITOR | CQPA333J200 |
| | C266 | CAPACITOR | CFPHW123H3D |
| | C267 | MPP CAPACITOR (0.82μ/200V) | ACE1044 |
| | C268 | CERAMIC CAPACITOR | CCDSL181J50 |
| | C269 | M. P. P. CAPACITOR | CFPHW103H3A |
| | C270 | CERAMIC CAPACITOR | CKDYF473Z50 |
| | C271 | ELECTR. CAPACITOR | CEHAQ010M50 |
| | C272 | CERAMIC CAPACITOR | CCDSL101J50 |
| | C273 | CERAMIC CAPACITOR | CKDYF103Z50 |
| | C274 | CERAMIC CAPACITOR | CKDYF473Z50 |
| | C301-304 | CERAMIC CAPACITOR | CCDSL101J50 |
| | C305 | CERAMIC CAPACITOR | CKDYB102K50 |
| | C307 | ELECTR. CAPACITOR | CEAS102M16 |
| | C308 | CERAMIC CAPACITOR | CKDYF103Z50 |
| | C309 | ELECTR. CAPACITOR | CEAS4R7M50 |
| | C310 | CERAMIC CAPACITOR | CKDYB102K50 |
| | C311 | CERAMIC CAPACITOR | CCDSH470J50 |
| | C312, 315 | CERAMIC CAPACITOR | CCDCH040C50 |
| | C317 | ELECTR. CAPACITOR | CEAS4R7M50 |
| | C318 | CERAMIC CAPACITOR | CKDYB102K50 |
| | C319 | CERAMIC CAPACITOR | CKDYF103Z50 |
| | C320 | CERAMIC CAPACITOR | CKDYB102K50 |
| | C321 | ELECTR. CAPACITOR | CEAS101M16 |
| | C322 | CERAMIC CAPACITOR | CKDYB102K50 |
| | C323 | ELECTR. CAPACITOR | CEAS470M16 |
| | C324 | ELECTR. CAPACITOR | CEAS2R2M50 |
| | C325 | CERAMIC CAPACITOR | CKDYF103Z50 |
| | C326 | ELECTR. CAPACITOR | CEAS4R7M50 |
| | C327 | ELECTR. CAPACITOR | CEASR47M50 |
| | C328 | CERAMIC CAPACITOR | CKCYB561K50 |
| | C329 | MYLOR FILM CAPACITOR | CQMA562J50 |
| | C330 | ELECTR. CAPACITOR | CEAS101M10 |
| | C331 | MYLOR FILM CAPACITOR | CQMA123J50 |
| | C332 | CERAMIC CAPACITOR | CKDYF103Z50 |
| | C333 | CERAMIC CAPACITOR | CCDCH820J50 |
| | C334 | CERAMIC CAPACITOR | CCDRH560J50 |
| | C335 | ELECTR. CAPACITOR | CEAS4R7M50 |
| | C336 | CERAMIC CAPACITOR | CCMCH150J50 |
| | C337 | ELECTR. CAPACITOR | CEAS2R2M50 |
| | C338 | CERAMIC CAPACITOR | CKDYF103Z50 |
| | C339 | ELECTR. CAPACITOR | CEANPR22M50 |
| | C340 | ELECTR. CAPACITOR | CEAS101M10 |

### 9.5.2 CONVERGENCE POSITION CONTROL

The convergence position control of this model is performed by using keys on the remote control unit or by using the main unit. Flows of the screen displays and key operations are generalized in Fig. 9 - 3. For details, refer to the description of the convergence adjustment in the operating instructions. When FACTORY ADJ mode is once activated and deactivated, the convergence position is set to the center of its variable range (the position is reset).

### • Description of Fig. 9-3

In ⓑ through ⓔ, a test cross is displayed. The cross is used for simple convergence position adjustment and some other adjustments for which the test cross is required.

In ⓕ through ⓘ, the input signal is displayed as-is, which can be used for the convergence position adjustment by supplying a cross hatch signal.

Note:
•Control by the main unit key
①: Control by SET key
Adjustment; Control by SELECT/ADJUST+and − keys.
+key : Moves the upward or to the right.
− key: Moves the downward or to the left.
•Control by the remote control key
②: Control by the numeric keys 2, 4, 6 and 8.
2 : Moves the upward
4 : Moves to the left.
6 : Moves to the right.
8 : Moves the downward.
③: Control by the numeric key 5.

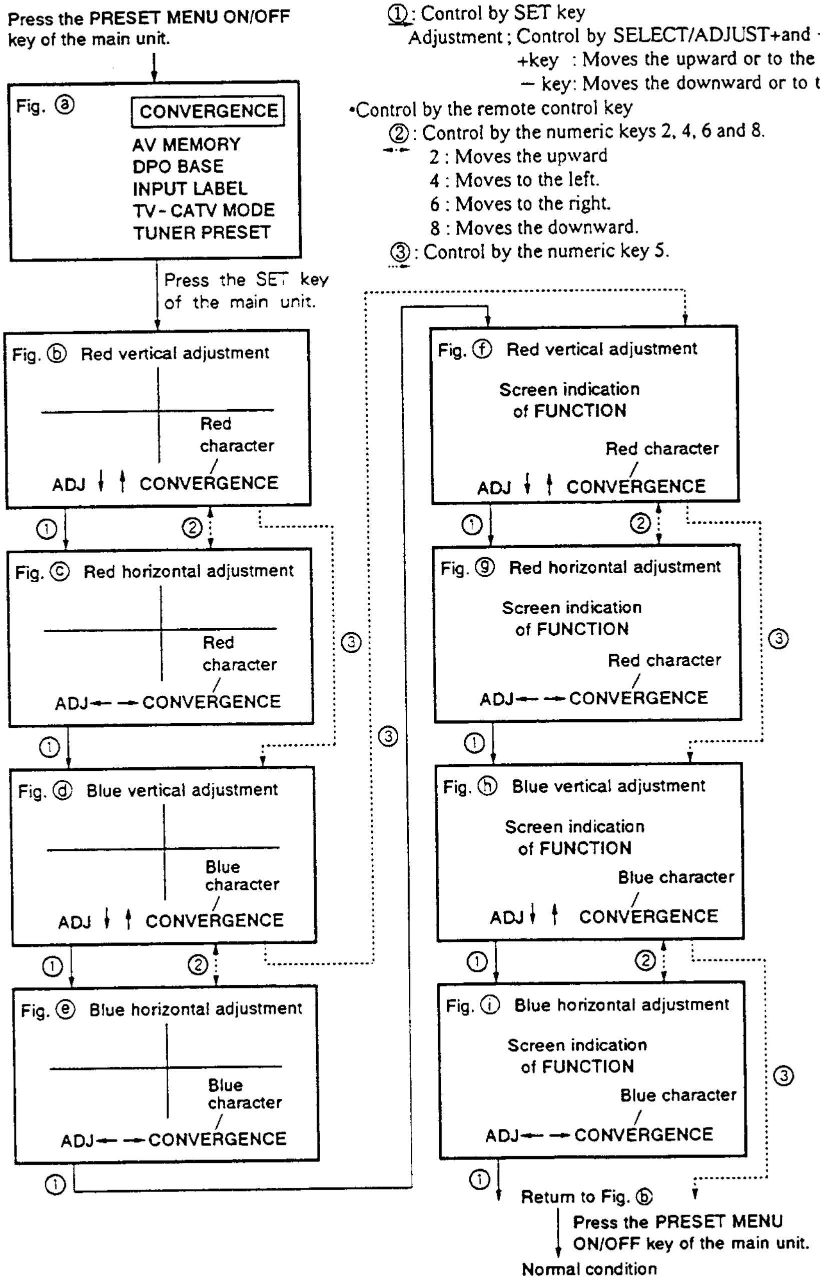

Press the PRESET MENU ON/OFF key of the main unit.
Fig. ⓐ
CONVERGENCE
AV MEMORY
DPO BASE
INPUT LABEL
TV-CATV MODE
TUNER PRESET
Press the SET key of the main unit.
Fig. ⓑ Red vertical adjustment
Red character
ADJ ↓ ↑ CONVERGENCE
Fig. ⓒ Red horizontal adjustment
Red character
ADJ← →CONVERGENCE
Fig. ⓓ Blue vertical adjustment
Blue character
ADJ ↓ ↑ CONVERGENCE
Fig. ⓔ Blue horizontal adjustment
Blue character
ADJ← →CONVERGENCE
Fig. ⓕ Red vertical adjustment
Screen indication of FUNCTION
Red character
ADJ ↓ ↑ CONVERGENCE
Fig. ⓖ Red horizontal adjustment
Screen indication of FUNCTION
Red character
ADJ← →CONVERGENCE
Fig. ⓗ Blue vertical adjustment
Screen indication of FUNCTION
Blue character
ADJ ↓ ↑ CONVERGENCE
Fig. ⓘ Blue horizontal adjustment
Screen indication of FUNCTION
Blue character
ADJ← →CONVERGENCE
①
②
③
Return to Fig. ⓑ
Press the PRESET MENU ON/OFF key of the main unit.
Normal condition

Fig. 9-3-3 Screen movement

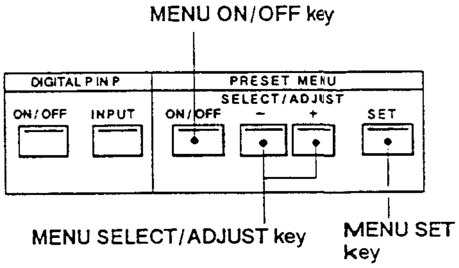

MENU ON/OFF key
DIGITAL PIN P
ON/OFF
INPUT
PRESET MENU
SELECT/ADJUST
ON/OFF
−
+
SET
MENU SELECT/ADJUST key
MENU SET key

Fig. 9-3-1
Key disposition of the main unit

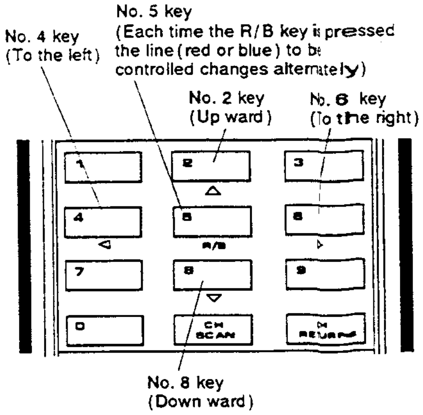

No. 4 key (To the left)
No. 5 key (Each time the R/B key is pressed the line (red or blue) to be controlled changes alternately)
No. 2 key (Up ward)
No. 6 key (To the right)
1
2
3
4
5
6
R/B
7
8
9
0
CH SCAN
RETURN
No. 8 key (Down ward)

Fig. 9-3-2
Key disposition of the remote control

### 9.5.3 CONVERGENCE ADJUSTMENT

- Picture movement and adjustment points are summarized in Fig. 9-4 and 9-5.
- Input signal is the cross-hatch signal.
- Convergence adjustment outline is referred to the service manual SD-P401/KUX1C(ARP1455), and SD-P40/KU (ARP-977-0), except for H-S-PIN and H-S-LIN adjustments.
- After performed all adjustment, release the short-circuit to obtain white screen and perform the pre-adjustment.
- Correct the vertical line by horizontal correcting signal and correct the horizontal line by vertical correcting signal.
- Adjustment points are located in the CONVERGENCE assembly.

### (1) GREEN LINE ADJUSTMENT

- Since the green lines are used as a reference when adjusting red and blue, make sure it is adjusted accurately.
- Short-circuit TP-47R(P120), TP-47B(P121) and TP+12V(P118) in the VIDEO•DEFLECTION assembly, then green lines appear in the screen. Release the short-circuit after green line adjustment.

| Step No. | Adjustment Item | Adjustment Point | Adjustment Procedure |
|---|---|---|---|
| 1 | GH-PIN | VR603 (C) | Adjust the green line to a straight line (refer to Fig. 9-4 and 9-5). |
| 2 | GH-KEY | VR604 (C) | |
| 3 | GV-BOW | VR605 (C) | |
| 4 | GV-KEY | VR606 (C) | |
| 5 | GV-S-KEY | VR607 (C) | |
| 6 | GV-PIN | VR608 (C) | |
| 7 | Repeat steps 1 thru 6 until the best possible picture is obtained. | | |

### (2) RED LINE ADJUSTMENT

- Short-circut TP-47B(P121) and TP+12V(P118), then green lines and red lines appear in the screen. Release the short-circuit after red line adjustment.
- Adjust each VR so that the red lines converge with the green lines to obtain yellow lines.
- After adjustment, perform fine-adjustment by observing the overall screen.

#### ● Red Horizontal Distortion Compensation Adjustment

| Step No. | Adjustment Item | Adjustment Point | Adjustment Procedure |
|---|---|---|---|
| 1 | RH-SKEW | VR609 (C) | Adjust the red vertical lines in the center of the screen to straight lines without distortion and lean. (Refer to Fig. 9-4.) |
| 2 | RH-BOW | VR610 (C) | |
| 3 | Repeat steps 1 and 2. | | |
| 4 | RH-KEY | VR611 (C) | Adjust the red vertical lines in the right and left section of the screen to straight lines without lean. (Refer to Fig. 9-4.) |
| 5 | RH-S-KEY | VR612 (C) | |
| 6 | Repeat steps 4 and 5. | | |
| 7 | RH-PIN | VR613 (C) | Adjust the red vertical lines in the right and left sections of the screen to straight lines without distortion. (Refer to Fig. 9-4.) |
| 8 | RH-S-PIN | VR614 (C) | |
| 9 | Repeat steps 7 and 8 or steps 1 thru 8. | | |

#### ● Red Horizontal Interval Compensation Adjustment

| Step No. | Adjustment Item | Adjustment Point | Adjustment Procedure |
|---|---|---|---|
| 1 | RH-POSITION | Refer to section 9.5.2 | Adjust so that the red vertical lines converge with the green vertical lines in the center of the screen to obtain yellow lines. (This serves as the reference setting, but if the lines diverge during the adjustment, proceed with the adjustment after considering this divergence.) |
| 2 | RH-LIN | VR615 (C) | Adjust so that the red vertical lines converge with the green vertical lines in the right and left sections of the screen to obtain yellow lines. (Refer to Fig. 9-4) |
| 3 | RH-S-LIN | VR616 (C) | |
| 4 | RH-SIZE | VR617 (C) | |
| 5 | Repeat steps 1 thru 4. | | |

#### ● Red Vertical Distortion Compensation Adjustment

| Step No. | Adjustment Item | Adjustment Point | Adjustment Procedure |
|---|---|---|---|
| 1 | RV-SKEW | VR618 (C) | Adjust the red horizontal lines in the center of the screen to straight lines without distortion and lean. (Refer to Fig. 9-5.) |
| 2 | RV-BOW | VR619 (C) | |
| 3 | Repeat steps 1 and 2. | | |
| 4 | RV-KEY | VR620 (C) | Adjust the red horizontal lines in the lower and upper sections of the screen to straight lines without lean. (Refer to Fig. 9-5.) |
| 5 | RV-S-KEY | VR621 (C) | |
| 6 | RV-PIN | VR622 (C) | |
| 7 | Repeat steps 4 thru 6 or steps 1 thru 6. | | |

#### ● Red Vertical Interval Compensation Adjustment

| Step No. | Adjustment Item | Adjustment Point | Adjustment Procedure |
|---|---|---|---|
| 1 | RV-LIN | VR623 (C) | Adjust so that the red horizontal lines converge with the green horizontal lines in the center of the screen to obtain yellow lines. (This serves as the reference setting, but if the lines diverge during the adjustment, proceed with the adjustment after considering this divergence.) (Refer to Fig. 9-5.) |
| 2 | RV-POSITION | Refer to section 9.5.2 | |
| 3 | RV-SIZE | VR624 (C) | Adjust so that the red horizontal lines converge with the green horizontal lines in the lower and upper sections of the screen to obtain yellow lines. (Refer to Fig. 9-5.) |
| 4 | Repeat steps 1 thru 3. | | |

## (3) BLUE LINE ADJUSTMENT

- Short-circuit TP-47R(P120) and TP+12V(P118), then green lines and blue lines appear in the screen. Release the short-circuit after blue line adjustment.
- Adjust each VR so that the blue lines converge with the green lines to obtain cyan lines.
- After adjustment, perform fine-adjustment by observing the overall screen.

### ● Blue Horizontal Distortion Compensation Adjustment

| Step No. | Adjustment Item | Adjustment Point | Adjustment Procedure |
|---|---|---|---|
| 1 | BH-SKEW | VR625 (C) | Observe the blue vertical lines in the screen, and adjust in the same way as the red horizontal distortion compensation adjustment. |
| 2 | BH-BOW | VR626 (C) | |
| 3 | BH-KEY | VR627 (C) | |
| 4 | BH-S-KEY | VR628 (C) | |
| 5 | BH-PIN | VR629 (C) | |
| 6 | BH-S-PIN | VR630 (C) | |

### ● Blue Horizontal Interval Compensation Adjustment

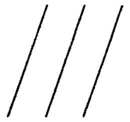
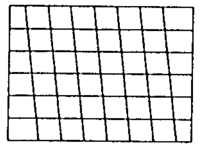
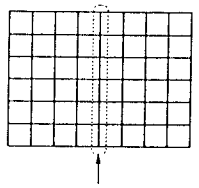
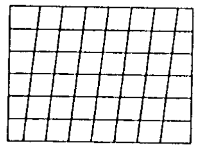
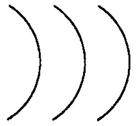
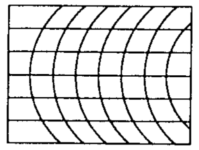
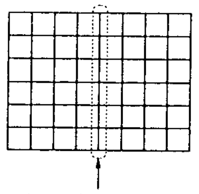
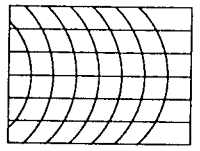
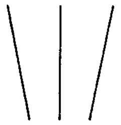
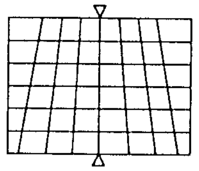
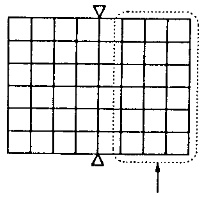
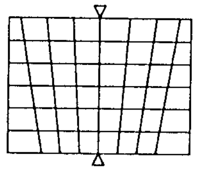
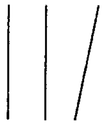
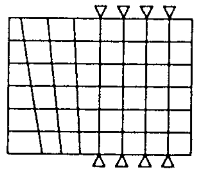
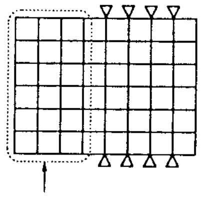
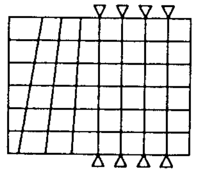
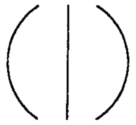
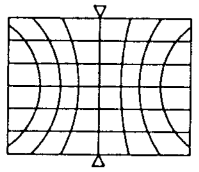
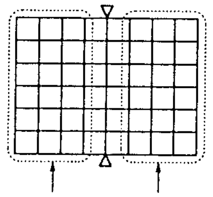
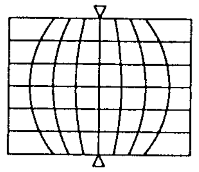
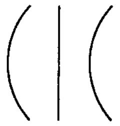
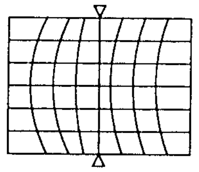
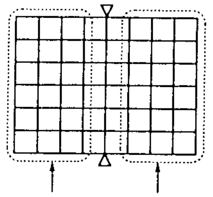
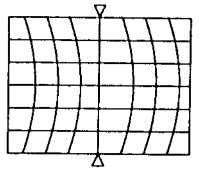
| Step No. | Adjustment Item | Adjustment Point | Adjustment Procedure |
|---|---|---|---|
| 1 | B-H-POSITION | Refer to section 9.5.2 | Adjust so that the blue lines converge with the green lines to obtain cyan lines in the same way as the red horizontal interval compensation adjustment. |
| 2 | BH-LIN | VR631 (C) | |
| 3 | BH-S-LIN | VR632 (C) | |
| 4 | BH-SIZE | VR633 (C) | |

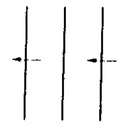
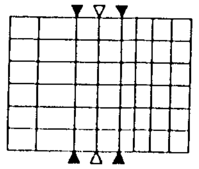
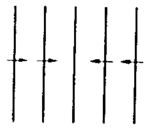
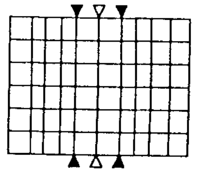
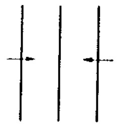
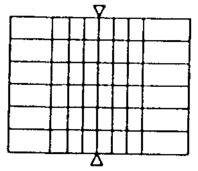
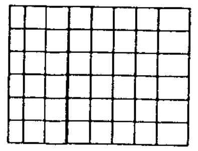
### ● Blue Vertical Distortion Compensation Adjustment

| Step No. | Adjustment Item | Adjustment Point | Adjustment Procedure |
|---|---|---|---|
| 1 | BV-SKEW | VR634 (C) | Observe the blue horizontal lines in the screen, and adjust in the same way as the red vertical distortion compensation adjustment. |
| 2 | BV-BOW | VR635 (C) | |
| 3 | BV-KEY | VR636 (C) | |
| 4 | BV-S-KEY | VR637 (C) | |
| 5 | BV-PIN | VR638 (C) | |

### ● Blue Vertical Interval Compensation Adjustment

| Step No. | Adjustment Item | Adjustment Point | Adjustment Procedure |
|---|---|---|---|
| 1 | BV-LIN | VR639 (C) | Adjust so that the blue lines converge with the green lines to obtain cyan lines in the same way as the red vertical interval compensation adjustment. |
| 2 | BV-POSITION | Refer to section 9.5.2 | |
| 3 | BV-SIZE | VR640 (C) | |

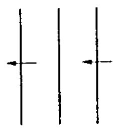
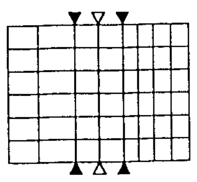
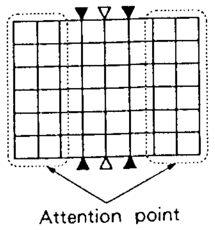
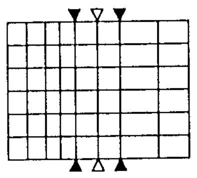
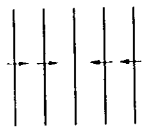
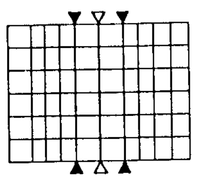
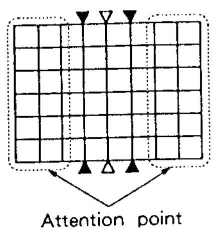
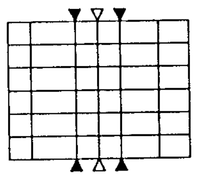
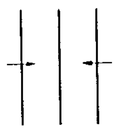
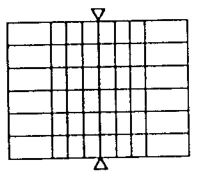
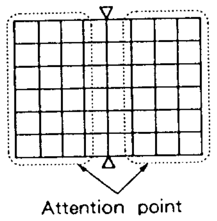
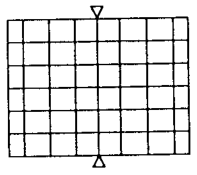
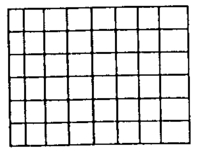
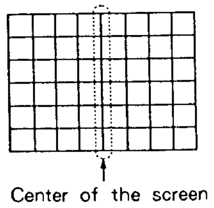
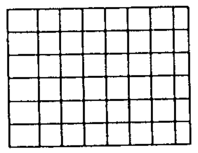
| Compensation | Signal and Mark *1 | Distorted Screen | Corrected Screen | Distorted Screen | Adjustment Point | |
|---|---|---|---|---|---|---|
| Horizontal Distortion Compensation | H - SKEW  |  |  |  | Observe the vertical lines in the center of the screen (where there is no H-KEY, H-S-KEY, H-PIN nor H-S-PIN movement), then adjust the vertical lines to eliminate lean. | To obtain the best possible lines, adjust the vertical lines in the center of the screen following the adjustment procedure of H-SKEW and H-BOW. |
| | H - BOW  |  |  |  | Observe the vertical lines in the center of the screen, then adjust the bowed lines to straight lines. | |
| | H - KEY  |  |  |  | Observe the vertical lines in the right section of the screen (where there is no H-S-KEY movement), then adjust the vertical lines to eliminate lean. | To eliminate lean, adjust the vertical lines in the right and left sections of the screen following the adjustment procedure of H-KEY and H-S-KEY. |
| | H - S - KEY  |  |  |  | Observe the vertical lines in the left section of the screen, then adjust the vertical lines to eliminate lean. | |
| | H - PIN  |  |  |  | Observe the vertical lines in the right and left sections of the screen, then adjust the bowed lines to symmetrize the right and left by H-S-PIN. And adjust the bowed vertical lines in the right and left sections of the screen to straight lines by H-PIN. | To eliminate distortion, straighten the vertical lines in the right and left sections of the screen following the adjustment procedure of H-PIN and H-S-PIN. |
| | H - S - PIN  |  |  |  | | |

| Compensation | Signal and Mark *1 | Distorted Screen |
|---|---|---|
| Horizontal Interval Compensation | H - LIN  |  |
| | H - S - LIN  |  |
| | H - SIZE  |  |
| | H - POSITION |  |

Note: KEY is short for KEYSTON
and LIN for LINEARITY
▽:denotes points which do
▼:denotes points which ha
*1:Sketch is printed on the p.c. bo

Fig. 9-4 Horizontal compensation

| Adjustment Point | |
|---|---|
| Observe the vertical lines in the center of the screen (where there is no H-KEY, H-S-KEY, H-PIN nor H-S-PIN movement), then adjust the vertical lines to eliminate lean. | To obtain the best possible lines, adjust the vertical lines in the center of the screen following the adjustment procedure of H-SKEW and H-BOW. |
| Observe the vertical lines in the center of the screen, then adjust the bowed lines to straight lines. | |
| Observe the vertical lines in the right section of the screen (where there is no H-S-KEY movement), then adjust the vertical lines to eliminate lean. | To eliminate lean, adjust the vertical lines in the right and left sections of the screen following the adjustment procedure of H-KEY and H-S-KEY. |
| Observe the vertical lines in the left section of the screen, then adjust the vertical lines to eliminate lean. | |
| Observe the vertical lines in the right and left sections of the screen, then adjust the bowed lines to symmetrize the right and left by H-S-PIN. And adjust the bowed vertical lines in the right and left sections of the screen to straight lines by H-PIN. | To eliminate distortion, straighten the vertical lines in the right and left sections of the screen following the adjustment procedure of H-PIN and H-S-PIN. |

| Compensation | Signal and Mark *1 | Distorted Screen | Corrected Screen | Distorted Screen | Adjustment Point | |
|---|---|---|---|---|---|---|
| Horizontal Interval Compensation | H - LIN  |  |  |  | Adjust following the adjustment procedure of H-LIN and H-S-LIN (remember the degree of H-SIZE movement) so that the interval between vertical lines on the right section is the same as on the left section, with a central point which does not move. For example, when the vertical lines in the right section of the screen are moved to right direction, move the vertical lines in the left section of the screen as same degree as the gap in the right section to the left direction. | The vertical lines in the center of the screen converge into the green lines by H-POSITION. And also, the vertical lines in the right and left sections of the screen converge into the green lines by H-LIN, H-S-LIN and H-SIZE. |
| | H - S - LIN  |  |  |  | | |
| | H - SIZE  |  |  |  | Converge the vertical lines in the right and left sections of the screen to green lines. | |
| | H - POSITION |  |  |  | The vertical lines of the screen move parallel on the right and left by the convergence control of the remote control or main unit. When the vertical line moves at will, consider the degree of movement. | |

Note: KEY is short for KEYSTONE,
and LIN for LINEARITY
▽:denotes points which do not move
▼:denotes points which hardly move
*1:Sketch is printed on the p.c. board.

Fig. 9-4 Horizontal compensation

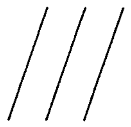
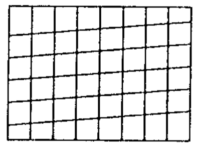
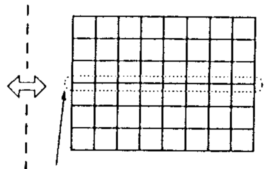
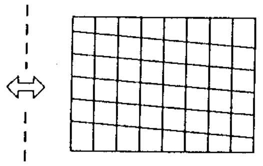
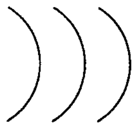
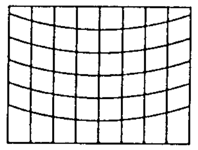
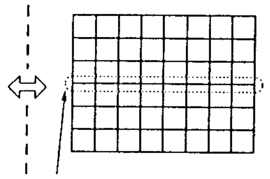
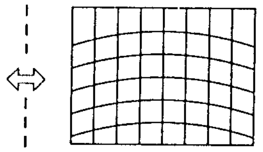
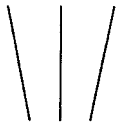
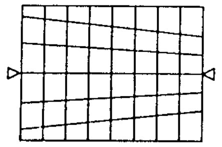
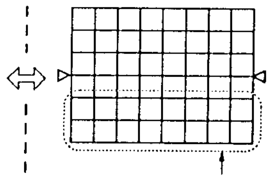
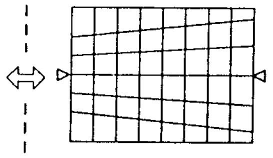
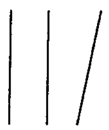
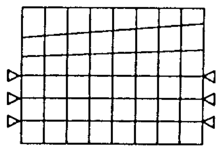
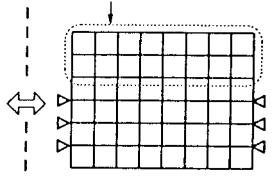
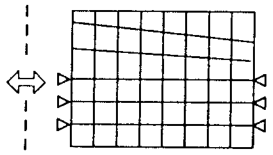
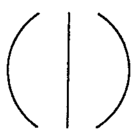
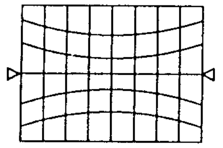
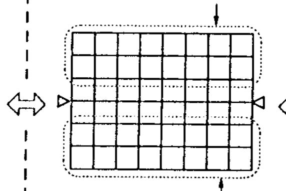
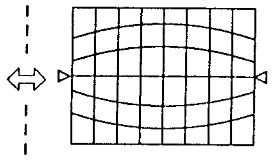
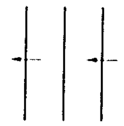
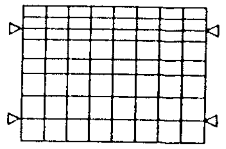
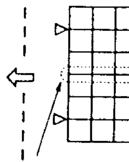
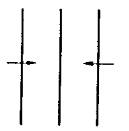
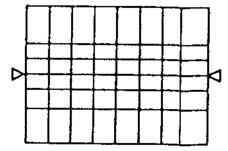
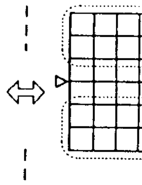
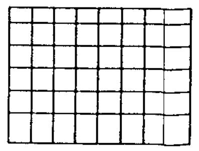
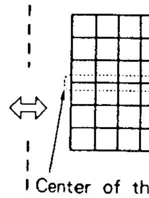
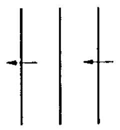
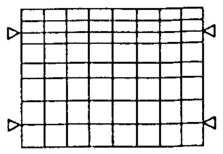
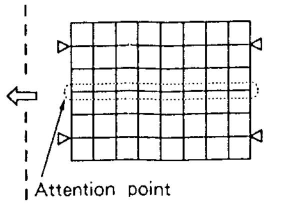
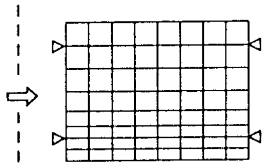
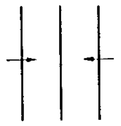
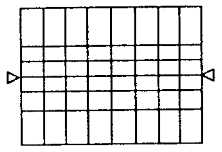
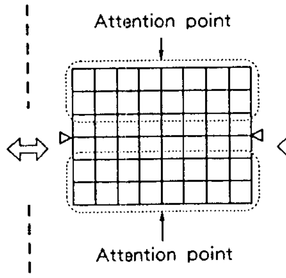
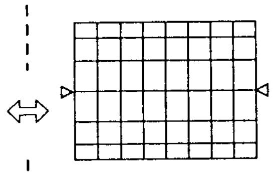
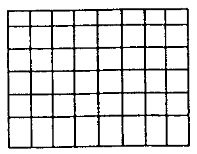
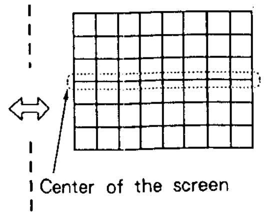
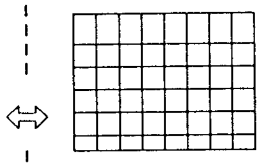
| Compensation | Signal and Mark *1 | Distorted Screen | Corrected Screen | Distorted Screen | Adjustment Point | |
|---|---|---|---|---|---|---|
| Vertical Distortion Compensation | V - SKEW  |  |  |  | Observe the horizontal lines in the center of the screen (where there is no V-KEY, V-S-KEY nor V-PIN movement), then adjust the horizontal lines to eliminate lean. | To obtain the best possible lines, adjust the horizontal lines in the center of the screen following the adjustment procedure of V-SKEW and V-BOW. |
| | V - BOW  |  |  |  | Observe the horizontal lines in the center of the screen, then adjust the bowed lines to straight lines. | |
| | V - KEY  |  |  |  | Observe the horizontal lines in the lower section of the screen (where there is no V-S-KEY movement), then adjust the horizontal lines to eliminate lean. | To eliminate lean, adjust the horizontal lines in the upper and lower sections of the screen following the adjustment procedure of V-KEY and V-S-KEY. |
| | V - S - KEY  |  |  |  | Observe the horizontal lines in the upper section of the screen, then adjust the horizontal lines to eliminate lean. | |
| | V - PIN  |  |  |  | Observe the horizontal lines in the upper and lower sections of the screen, then adjust the bowed lines to straight lines. | To eliminate distortion, straighten the horizontal lines in the upper and lower sections of the screen following the adjustment procedure of V-PIN. |

Fig. 9-5 Vertical compensation

| Compensation | Signal and Mark *1 | Distorted Screen | Corre |
|---|---|---|---|
| Vertical Interval Compensation | *2 V - LIN  |  |  |
| | V - S - LIN | | No a |
| | V - SIZE  |  |  |
| | V - POSITION |  |  |

| Adjustment Point | |
|---|---|
| e horizontal lines in the e screen (where there is no -S-KEY nor V-PIN ), then adjust the horizontal ninate lean. | To obtain the best possible lines, adjust the horizontal lines in the center of the screen following the adjustment procedure of V-SKEW and V-BOW. |
| e horizontal lines in the he screen, then adjust the s to straight lines. | |
| e horizontal lines in the ion of the screen (where V-S-KEY movement), t the horizontal lines to ean. | To eliminate lean, adjust the horizontal lines in the upper and lower sections of the screen following the adjustment procedure of V-KEY and V-S-KEY. |
| e horizontal lines in the tion of the screen, then orizontal lines to eliminate | |
| he horizontal lines in the lower sections of the n adjust the bowed lines to es. | To eliminate distortion, straighten the horizontal lines in the upper and lower sections of the screen following the adjustment procedure of V-PIN. |

Fig. 9-5 Vertical compensation

| Compensation | Signal and Mark *1 | Distorted Screen | Corrected Screen | Distorted Screen | Adjustment Point | |
|---|---|---|---|---|---|---|
| Vertical Interval Compensation | *2<br>V-LIN<br> |  | <br> |  | Converge the horizontal lines in the center of the screen into green lines. At this time, be sure to the same horizontal line interval as upper section as lower section about a central point. However, if the same interval is not to obtained, adjust POSITION and adjust V-LIN again. | The horizontal lines in the center of the screen converge into the green line by V-LIN and V-POSITION. And also the horizontal lines in the upper and lower sections of the screen converge into the green line by V-SIZE. |
| | V-S-LIN | No adjustment | | | —— | |
| | V-SIZE<br> |  | <br> |  | Converge the horizontal lines in the upper and lower sections of the screen into green lines. | |
| | V-POSITION |  | <br> |  | The horizontal lines of the screen move parallel on the upper and lower by the convergence control of the remote control or main unit. When the horizontal line moves at will, consider the degree of movement. | |

Note: KEY is short for KEYSTONE, and LIN for LINEARITY.
∇ :denotes points which do not move.

*1:Sketch is printed on the P.C. board.
*2:The movement of V-LIN is the same as the SD-P40/KU.

## 9.12 WHEN CRT ASSEMBLY R, G, OR B IS REPLACED

- The CRT assembly R, G, B replacement procedure is described in Section"10. Replacing the CRT assembly".
- When one or two tubes are replaced, match the new tubes with the remaining tube. If all three tubes are replaced, first adjust G, and then match the other two tubes with the G tube.

| Step No. | Adjustment Item | Input Signal | Adjustment Point | Adjustment Procedure |
|---|---|---|---|---|
| 1 | Deflection yoke angle and centering adjustment | Cross signal (or apply any signal, and generate a test cross signal as described in section 9.5.2.) | Centering magnet of deflection yoke of replaced CRT assembly (Refer to Fig. 9-8) | Adjust the deflection yoke angle until the color cross of the replaced CRT assembly is parallel with the color cross of a CRT assembly which has not been replaced.<br>Reset the convergence position (once activate and deactivate FACTORY ADJ mode) when the replaced CRT assembly is red or blue.<br>Adjust the centering magnet of the deflection yoke in the replaced CRT assembly until cross becomes converge. |
| 2 | Focus adjustment | Cross hatch | Replaced color focus VR (VR1) and lens assembly connected to replaced CRT assembly (Refer to Fig. 9-9 and Fig. 9-10.) | Adjust the focus of the replaced CRT assembly to optimum condition. (Shifting the convergence position may provide easier observation. Be sure to return it to the original position after the adjustment is completed.) |
| 3 | Convergence adjustment | | Match the color convergence of the replaced CRT assembly with the color of an assembly which has not been replaced. See Section 9.5.3 CONVERGENCE ADJUSTMENT for details on the matching procedure. (When CRT assembly G is replaced, match the color convergence of the R, G and B.) | |
| 4 | White balance | Color bar signal without color signal | Screen VR(VR1)<br>VR102 (R) } Drive VR(V)<br>VR103 (B) | Set the picture quality to standard by remote control.<br>Adjust the replaced color screen VR until grey can be seen in the color of dark area.<br>Adjust the replaced color drive VR until the color of bright area becomes white. (When CRT assembly G is replaced, slightly adjust the drive VR [R] and [B] .)<br>Adjust the PIONEER Standard Brightness only when the above adjustments have not been successfully effectuated due to the abnormal brightness. |
| 5 | PIONEER standard settings | Adjust as described in steps 2 thru 10 in Section 9.4.2.<br>Also make the VNR settings according to 9.4.2 when required. | | |

## 9.13 WHEN LENS ASSEMBLY IS REPLACED

- Remove the lenticular sheet, and attach tracing paper with a plastic tape, etc. instead. (Refer to Fig. 9-9.) Adjust the focus of the lens assembly newly mounted, by observing the picture shown on the tracing paper.

## 9.14 WHEN OTHER ASSEMBLIES ARE REPAIRED OR REPLACED

- No adjustment required.

## 9.6 WHEN AV I/O-3P•Y/C SEP ASSEMBLY IS REPAIRED

| Step No. | Adjustment Item | Input Signal | Adjustment Point | Adjustment Procedure |
|---|---|---|---|---|
| 1 | Comb filter adjustment | Color bar | VR571(A)<br>L575(A) | Adjust TP-01(P571) 3.58MHz component to minimum level. |

## 9.7 WHEN AV I/O-3P•Y/C SEP ASSEMBLY IS REPLACED

- No adjustment required.

## 9.8 WHEN PINP ASSEMBLY IS REPAIRED OR REPLACED

| Step No. | Adjustment Item | Input Signal | Adjustment Point | Adjustment Procedure |
|---|---|---|---|---|
| 1 | TINT adjustment of Sub-picture | Color bar (Main and Sub-picture) | VR701 (P) | TINT of the Sub-picture ought not to shift. If it is shifted, adjust as follows.<br>Set to P in P picture on the screen, and adjust the TINT of the Sub-picture so that it becomes the same as that of the Main-picture. |

## 9.9 WHEN FRONT CONTROL ASSEMBLY IS REPAIRED

| Step No. | Adjustment Item | Input Signal | Adjustment Point | Adjustment Procedure |
|---|---|---|---|---|
| 1 | DPO sensitivity adjustment | Adjust DPO sensitivity adjustment as described in section 9.16. | | |

## 9.10 WHEN FRONT CONTROL ASSEMBLY IS REPLACED

- No adjustment required.

## 9.11 WHEN R, G, OR B CRT DRIVE ASSEMBLY IS REPAIRED OR REPLACED

- White balance ought to be obtained best picture.
  If not, adjust the white balance as follows.

| Step No. | Adjustment Item | Input Signal | Adjustment Point | Adjustment Procedure |
|---|---|---|---|---|
| 1 | White balance adjustment | Ordinary broadcasting | Screen(VR1)<br>(R)<br>(B) | Adjust the white if proper adjustment cannot be achived as follows. Set the COLOR by the remote control to minimum, adjust the screen VRs to obtain best picture. |

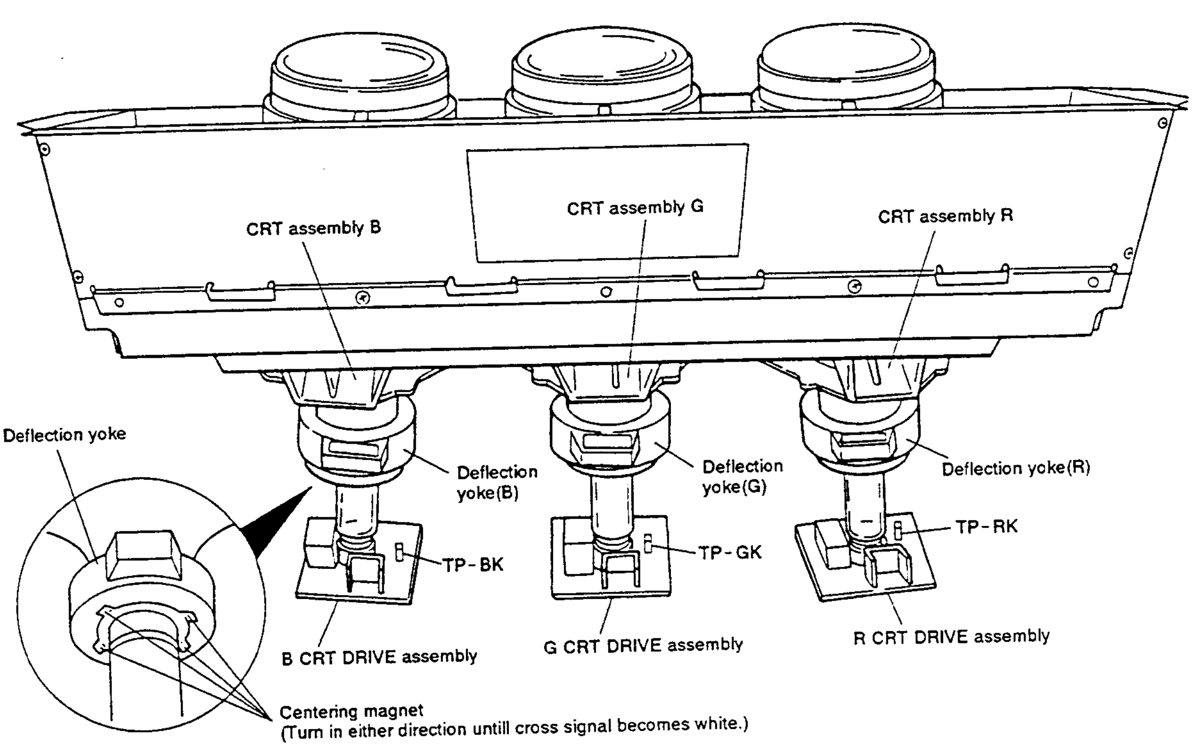

CRT assembly B
CRT assembly G
CRT assembly R
Deflection yoke
Deflection yoke(B)
Deflection yoke(G)
Deflection yoke(R)
TP-BK
TP-GK
TP-RK
B CRT DRIVE assembly
G CRT DRIVE assembly
R CRT DRIVE assembly
Centering magnet
(Turn in either direction untill cross signal becomes white.)

Fig. 9-8 Adjustment point (1)

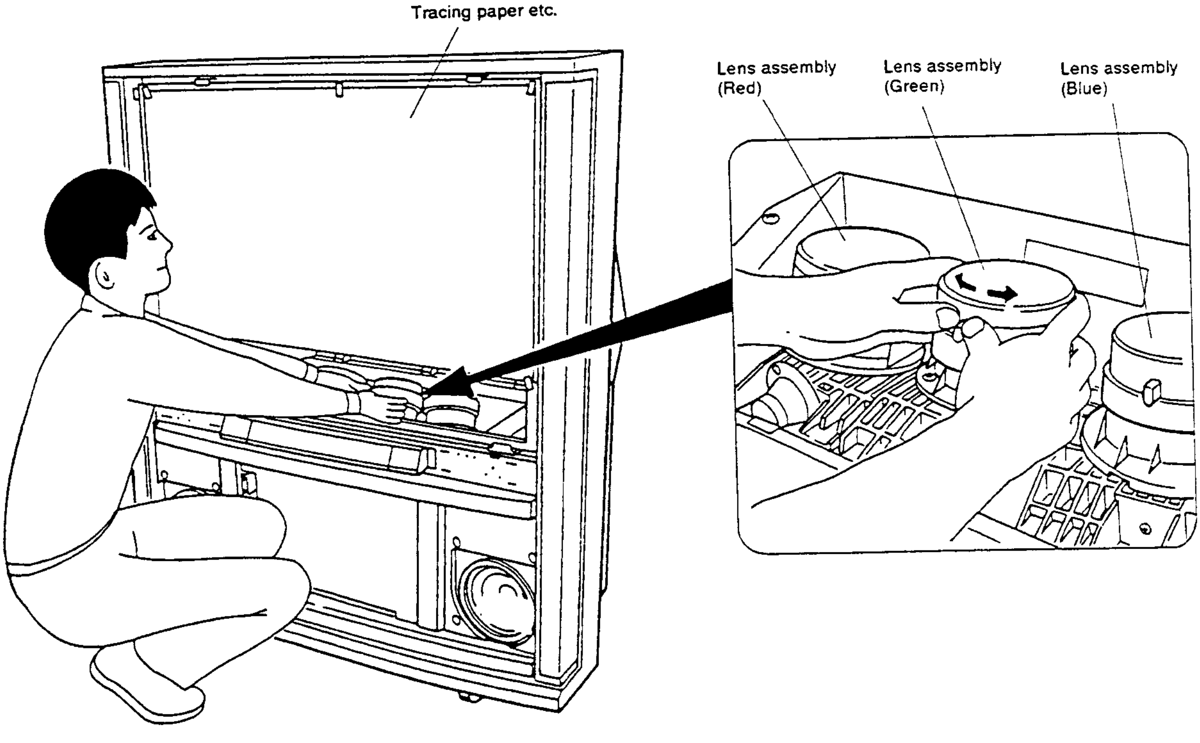

Tracing paper etc.
Lens assembly (Red)
Lens assembly (Green)
Lens assembly (Blue)

Fig. 9-9 Adjustment point (2)

## 9.15 DPO BASE SETTING

The DPO function features a DPO light-sensitive section in the front control panel designed to judge the level of external light when the front panel DPO switch(S559) in ON, thereby matching the PROJECTION MONITOR RECEIVER picture quality (contrast, color, bright) with the external light.

There are two STANDARD kinds of DPO picture qualities. When the environment is bright, the first DPO quality(DPO LIGHT) is selected. When the environment is dark, the second DPO quality(DPO DARK) is selected. The data on these two DPO qualities are stored in IC302( non-volatile memory).

Hence, if IC302(or peripheral circuits) is repaired or replaced, or if VIDEO•DEFLECTION assembly is replaced, picture quality must be stored in IC302 again.

To store the DPO picture quality data, refer to the operating instructions. The values set at the factory are shown here for reference. These values are subject to change.

- DPO LIGHT
  COLOR:0
  CONTR:0
  BRITE:0
- DPO DARK
  COLOR: −2
  CONTR: −12
  BRITE:+3

Note: For this adjustment, it is not necessary to activate FACTORY ADJ mode.

## 9.16 DPO SENSITIVITY ADJUSTMENT

The sensitivity of the DPO light-sensitive section is adjusted to determine the level of external light at which the DPO feature is activated. This adjustment is made by VR551 in the FRONT CONTROL assembly(refer to Fig. 9-10), and should be carried out according to the customer's preferences. The adjustment procedure used at the factory is given for reference.

(1) Using an incandescent light bulb as the light source, light is beamed directly into the DPO light sensitive section with a light- intensity level of 50 lux at the DPO.

(2) Switch the DPO switch(S559) on. "DPO ON" indicate in the screen.

(3) FRONT CONTROL assembly VR551 is adjusted to obtain a voltage of 4.7V( ± 0.2V) at the Q551 emitter.

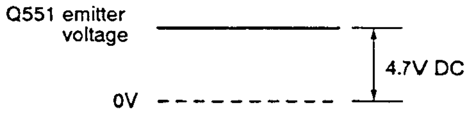


Fig. 9-6 DPO sensitivity adjustment

## 9.17 ANODE CABLE CONNECTION AND DISCONNECTION

> **SERVICEMAN WARNING**
>
> Before removing the anode cable, turn off the power, unplug the AC plug and let the unit discharge for more than 1 minute.

Disconnect the FBT anode cable as outlined in Fig. 9-7. Confirm the extension of the rubber cover before disconnecting the cable, then it is easy to connect the anode cable after the anode voltage is measured.

When connecting the anode cable, proceed in the reverse order as mentioned above. Confirm that the cable will not come off by pulling it after the cable is connected.

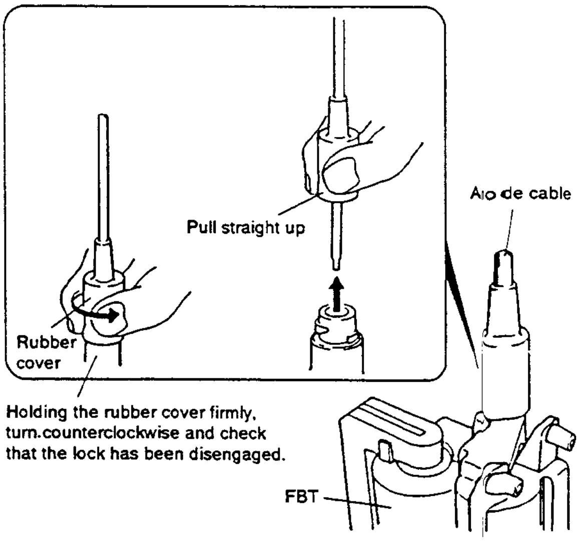

Pull straight up
Anode cable
Rubber cover
Holding the rubber cover firmly, turn.counterclockwise and check that the lock has been disengaged.
FBT

Fig. 9-7 Disconnecting the anode cable

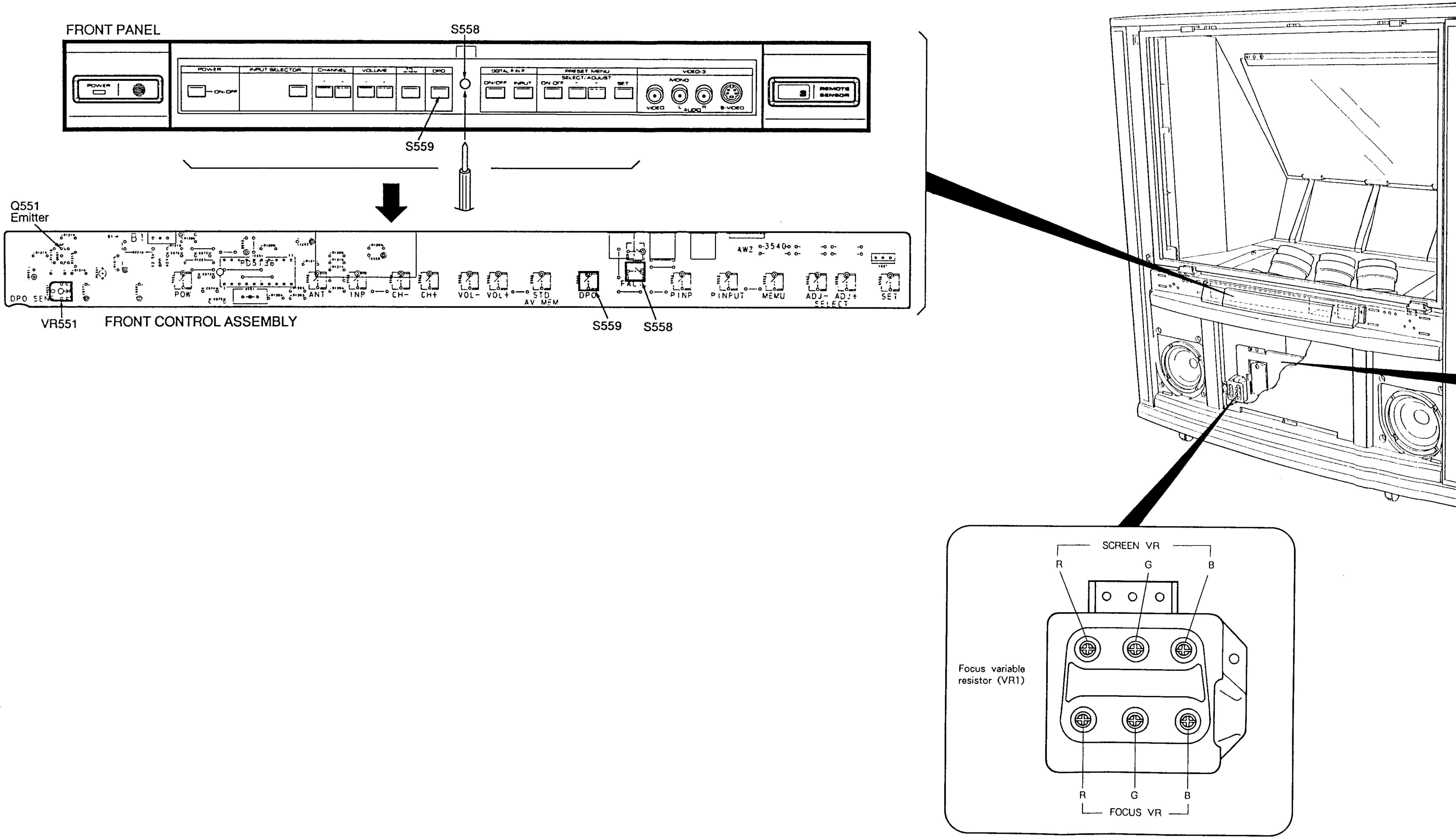
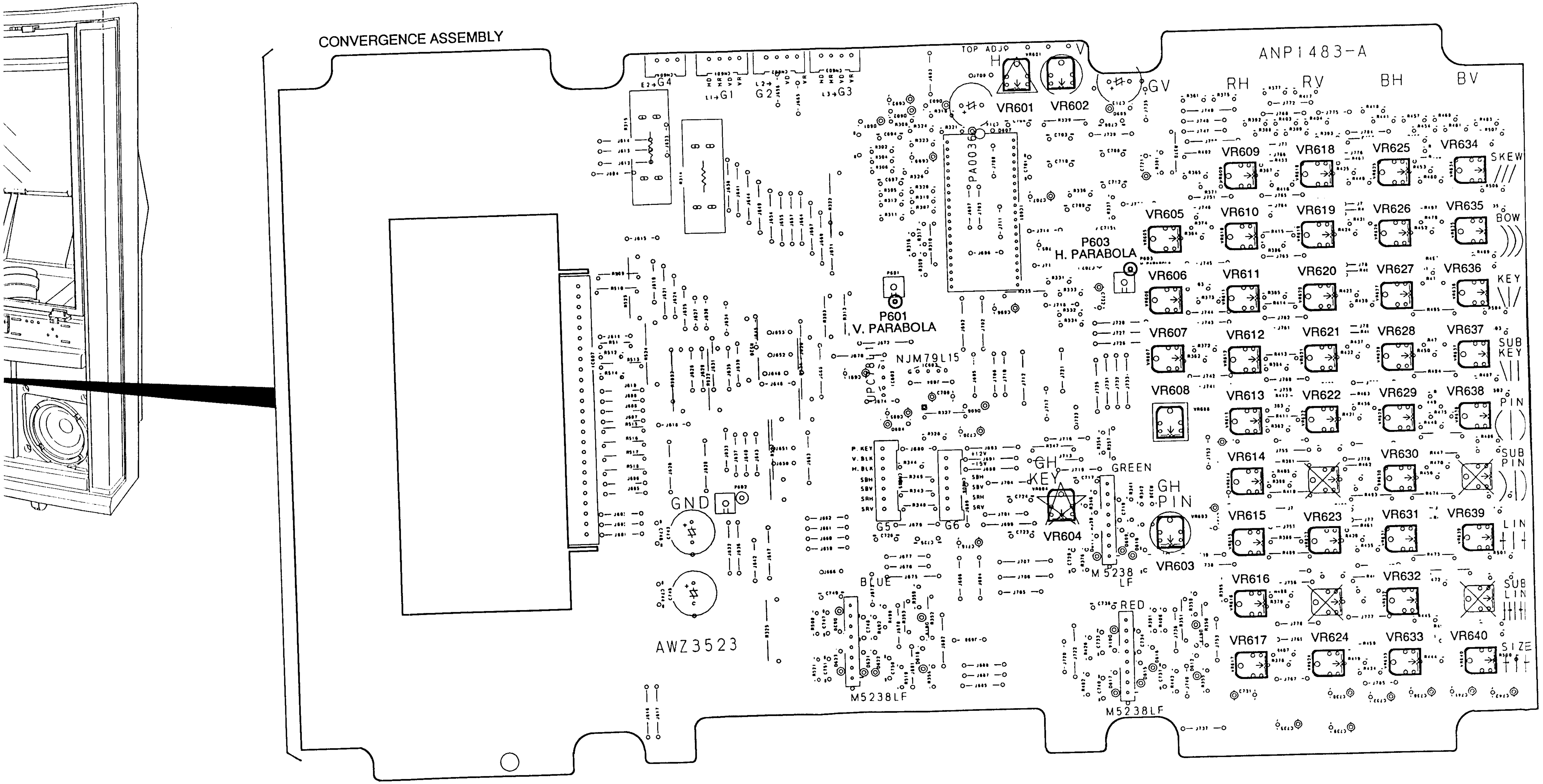

FRONT PANEL
S558
POWER
ON/OFF
INPUT SELECTOR
CHANNEL
VOLUME
DPO
DIGITAL PINP
ON/OFF
INPUT
PRESET MENU
SELECT/ADJUST
ON OFF
SET
VIDEO-3
MONO
VIDEO
L AUDIO R
S-VIDEO
REMOTE SENSOR
S559
Q551
Emitter
DPO SEN
POW
ANT
INP
CH-
CH+
VOL-
VOL+
STD
AV MEM
DPO
FAC
PINP
PINPUT
MEMU
ADJ- ADJ+
SELECT
SET
AWZ-3540
VR551
FRONT CONTROL ASSEMBLY
S559
S558
SCREEN VR
R
G
B
Focus variable
resistor (VR1)
R
G
B
FOCUS VR

Fig. 9-10 Adjustment point (3)


CONVERGENCE ASSEMBLY
ANP1483-A
AWZ3523
E2→G4
L1→G1
G2
L3→G3
TOP ADJ
H
V
GV
VR601
VR602
PA003
P603
H. PARABOLA
P601
V. PARABOLA
NJM79L15
UPC78L
GND
G5
G6
BLUE
RED
GREEN
GH
KEY
GH
PIN
VR603
VR604
M5238LF
M5238LF
M5238LF
RH
RV
BH
BV
VR605
VR606
VR607
VR608
VR609
VR610
VR611
VR612
VR613
VR614
VR615
VR616
VR617
VR618
VR619
VR620
VR621
VR622
VR623
VR624
VR625
VR626
VR627
VR628
VR629
VR630
VR631
VR632
VR633
VR634
VR635
VR636
VR637
VR638
VR639
VR640
SKEW
BOW
KEY
SUB KEY
PIN
SUB PIN
LIN
SUB LIN
SIZE
P. KEY
V. BLK
H. BLK
SBH
SBV
SRH
SRV

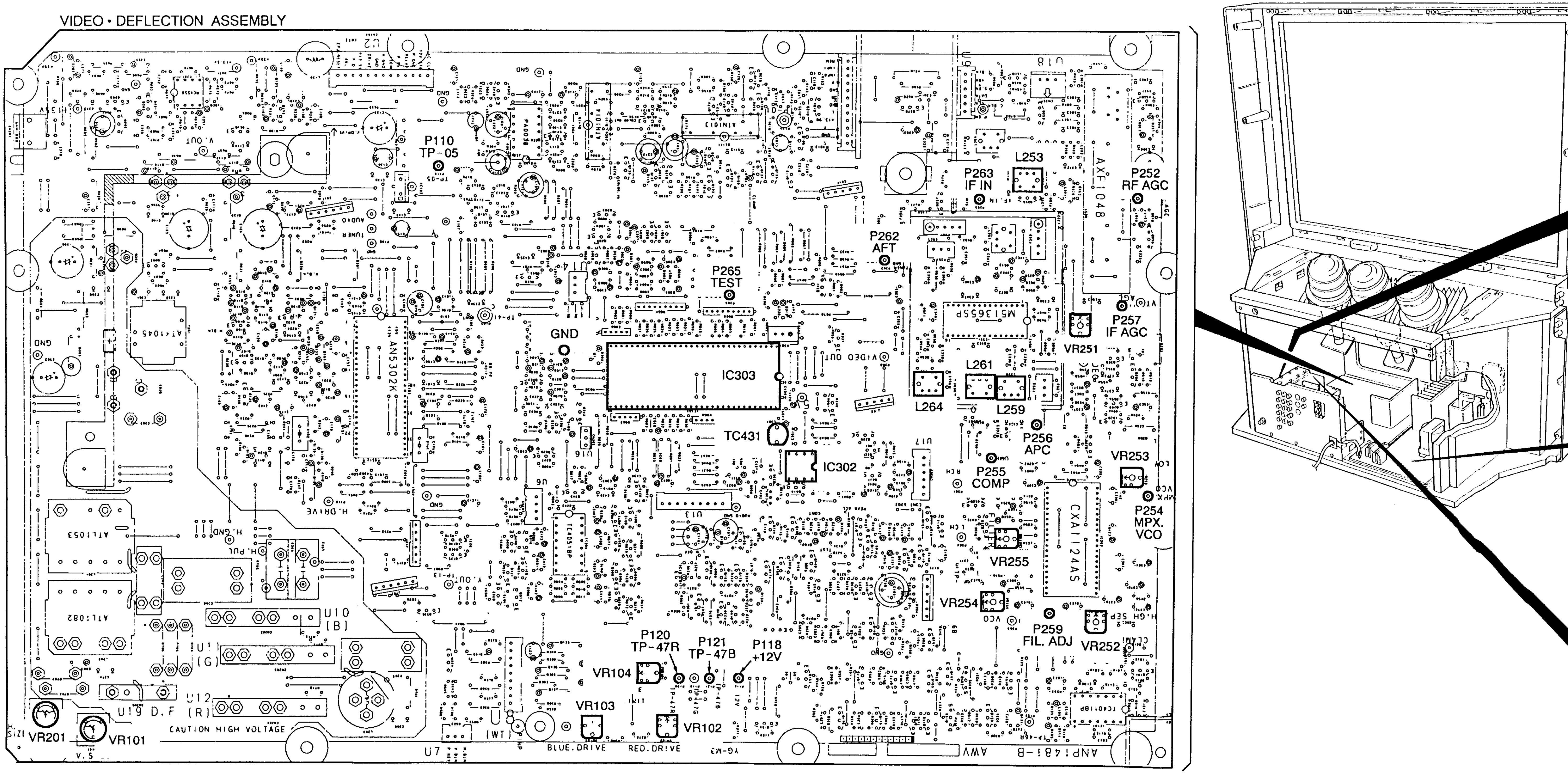
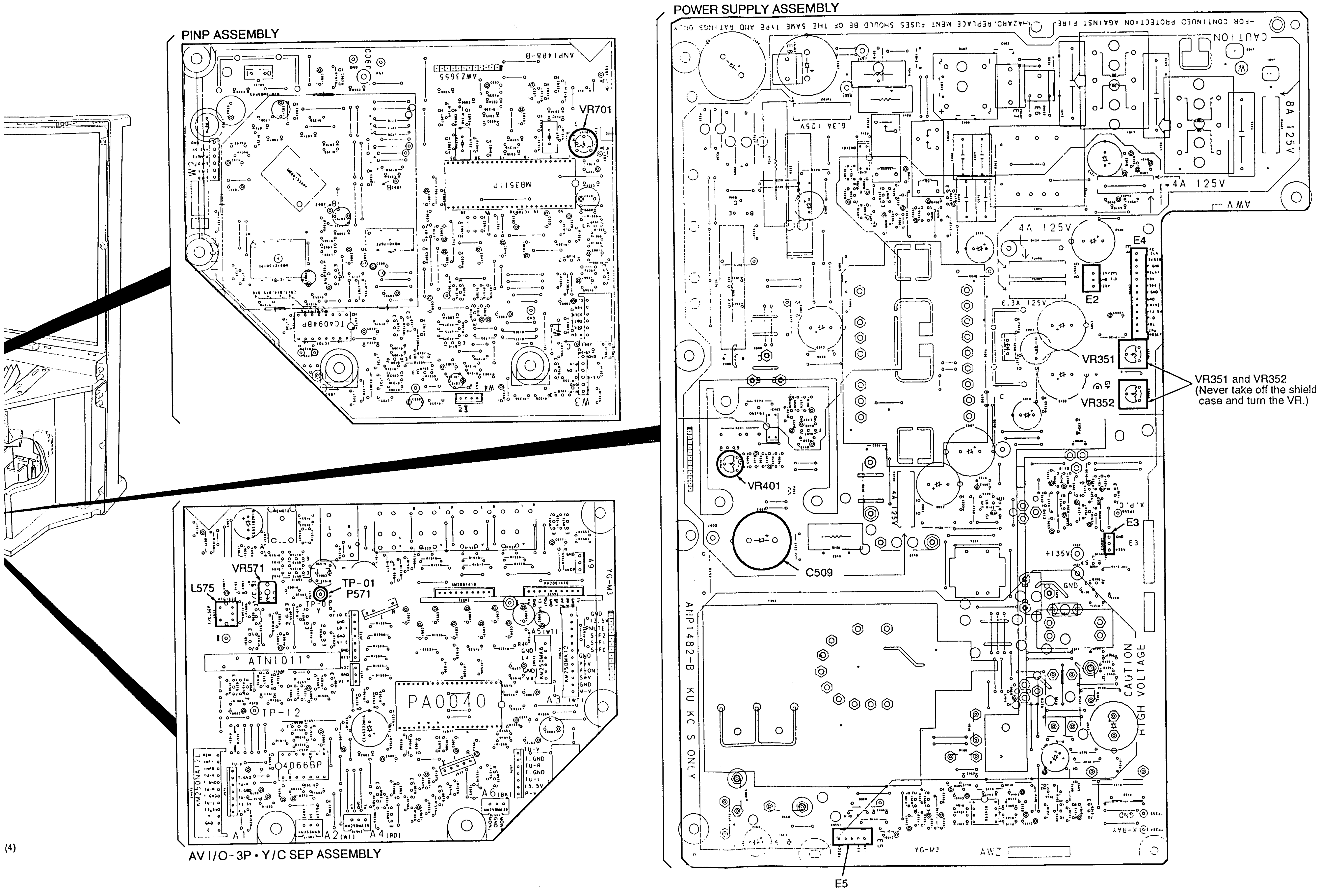

VIDEO • DEFLECTION ASSEMBLY
P110
TP-05
L253
P263
IF IN
P252
RF AGC
P262
AFT
P265
TEST
GND
IC303
P257
IF AGC
VR251
L261
L264
L259
P256
APC
TC431
IC302
P255
COMP
VR253
P254
MPX.
VCO
VR255
VR254
P259
FIL. ADJ
VR252
P120
TP-47R
P121
TP-47B
P118
+12V
VR104
VR103
VR102
VR201
VR101
AN5302K
CXA1124AS
M51365SP
AXF1048
CAUTION HIGH VOLTAGE
BLUE.DRIVE
RED.DRIVE
ANP1481-B

Fig. 9-11 Adjustment point (4)


PINP ASSEMBLY
VR701
MB3511P
IC4094BP
ANP1488-B
AWZ3655
W1
W2
W3
W4
AV I/O-3P • Y/C SEP ASSEMBLY
VR571
L575
TP-01
P571
TP-12
ATN1011
PA0040
4066BP
A1
A2
A3
A4
A5
A6
A9
YG-M3
POWER SUPPLY ASSEMBLY
-FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE MENT FUSES SHOULD BE OF THE SAME TYPE AND RATINGS ONLY
CAUTION
8A 125V
6.3A 125V
4A 125V
AWV
E2
E3
E4
E5
VR351
VR352
VR401
C509
+135V
GND
ANP1482-B KU KC S ONLY
CAUTION HIGH VOLTAGE
X-RAY
YG-M3
AWZ

VR351 and VR352
(Never take off the shield case and turn the VR.)

## 10.2 ANODE CABLE SHEATH PEELING

- Peel the sheath of the end of cut anode cable and new anode cable.
- The anode cable structure is outlined in Fig. 10-2. Note that the sheath consists of two layers.
- The method used to peel the sheath back is illustrated in Fig. 10-3. Use a cutter knife, taking care not to damage the core leads.

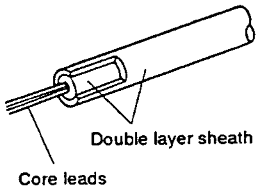

Double layer sheath
Core leads

Fig. 10-2 Anode cable structure

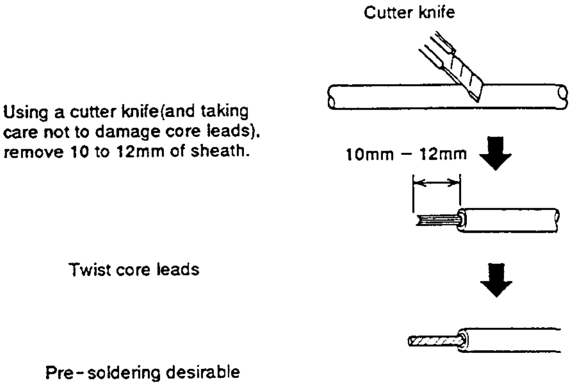

Cutter knife
Using a cutter knife(and taking care not to damage core leads), remove 10 to 12mm of sheath.
10mm – 12mm
Twist core leads
Pre-soldering desirable

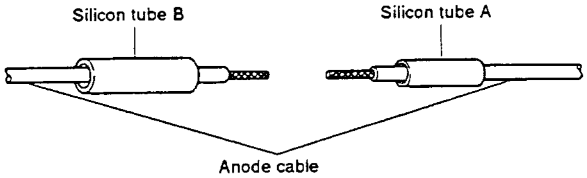
Fig. 10-3 Anode cable sheath peeling

## 10.3 ANODE CABLE JOINING PROCEDURE

- Join the cut anode cable and the new anode cable to restore as shown in Fig. 10-1. Also, when replacing the FBT, refer to section 9.17 "Anode cable connection and disconnection".
- Slip two silicon tubes(silicon tubes A and B in Fig. 10-4) over the anode cables before making the join.
- The silicon adhesive is applied to guard the cable core leads from external air. Apply binder liberally. After completing the joint (at step ⑩ in Fig. 10-4-1 thru 3), check that there is no hole in the silicon binder and the tube interior cannot be seen.
- Leave the silicon adhesive to harden overnight.

CAUTION : For the silicon adhesive, be sure to use silicon adhesive part no. GYL-017.

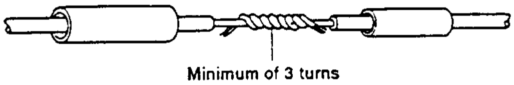
①


Silicon tube B
Silicon tube A
Anode cable

Slip silicon tube A and B over anode cable (either side)

NOTE: Silicon tube A: Short thin contracting tube \ Supplied when ordering CRT assembly
Silicon tube B: Long thick contracting tube / or the anode cable kit.

②


Minimum of 3 turns

Twist cables together through at least 3 turns.

Fig. 10-4-1 Anode cable joining procedure (1)

# 10. REPLACING THE CRT ASSEMBLY

**Serviceman Warning**
When replacing the CRT assembly, turn off the power, unplug the AC plug and let the unit discharge for more than 1 minute.

The anode cables of the CRT assembly R, G, and B in PROJECTION MONITOR RECEIVER are connected in series as shown in Fig. 10-1.
When replacing the CRT assembly, the anode cable have to be cut.

Note: Since the anode cables for the CRT assembly to service supplies are only available in half lengths, either cut longer lengths, or join older lengths of cable to ensure that the original cable length is used.

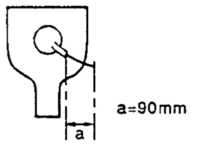
Table 10-1 Cable disconnecting methods

| Cable | Replacement CRT assembly | | |
|---|---|---|---|
| | **When CRT assembly B is replaced** | **When CRT assembly G is replaced** | **When CRT assembly R is replaced** |
| Cable ⓐ | —— | —— | Disconnect the anode cable from the FBT. (Refer to section "9.17 Anode cable connection and disconnection".) |
| Cable ⓑ | Leave it as is | Cut a place 20mm from the exact center towards the CRT assembly G | Cut a place 20mm from the exact center towards the CRT assembly R |
| Cable ⓒ | Cut a place 20mm from the exact center towards the CRT assembly B | Cut a place 20mm from the exact center towards the CRT assembly G | Leave it as is |

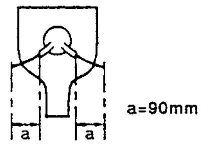
Note: Do not cut other cables by mistake.

## 10.1 WHEN REPLACING THE CRT ASSEMBLY

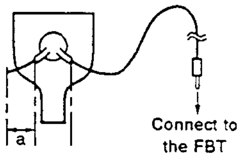
Each CRT assembly supplied as a spare part is as shown below.



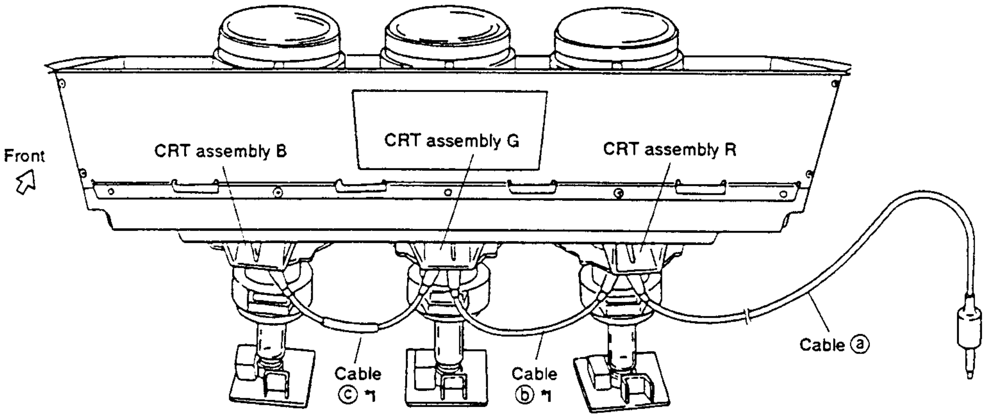
CRT assembly B



CRT assembly G



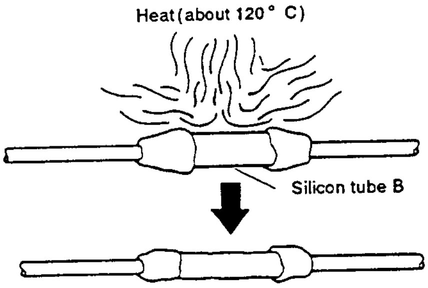
CRT assembly R



*1 : Length of cable ⓒ and ⓑ is 180mm.

Fig. 10-1 Connection diagram of the each CRT assemblies

⑩

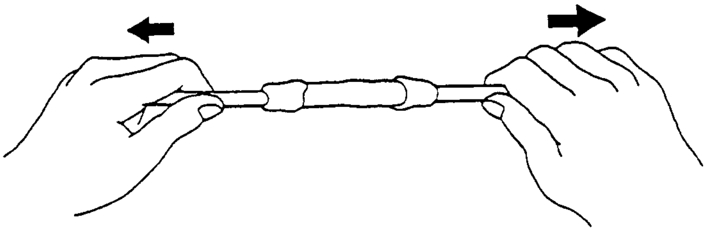


Apply heat(about 120° C)to contract silicon tube B.

Note: Use an industrial drier or soldering iron as the heat source.

Check that the silicon adhesive has been applied evenly without air pockets etc. If there are any pockets etc. apply additional silicon adhesive.

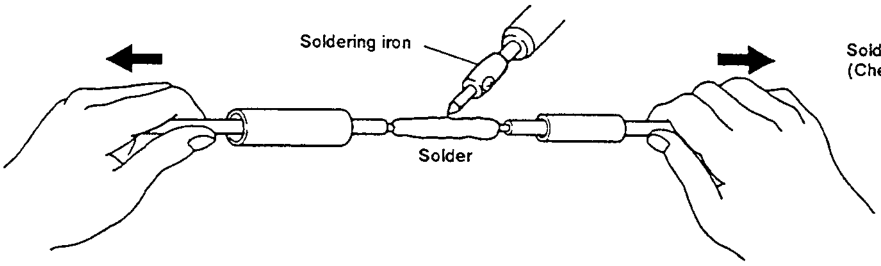
⑪



Gently tug both ends to check that the cables do not separate.

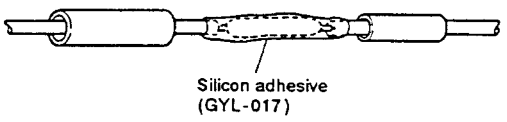
Fig. 10-4-3 Anode cable joining procedure (3)

③


Soldering iron
Solder

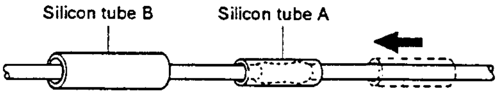
Solder the joint, and pull at both ends.
(Check against faulty soldering.)

④


Silicon adhesive
(GYL-017)

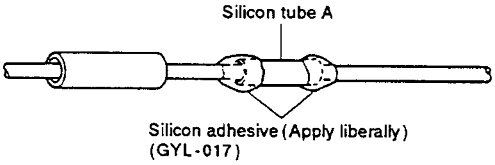
Apply silicon adhesive liberally.
(Cover the entire soldered section and remaining bare core leads.)

⑤


Silicon tube B
Silicon tube A

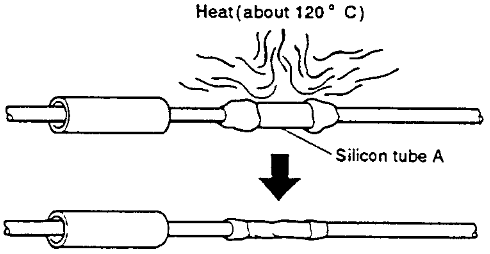
Cover the silicon adhesive section with silicon tube A.
(With the center of the silicon tube A corresponding to the solder section)

⑥


Silicon tube A
Silicon adhesive (Apply liberally)
(GYL-017)

Apply liberal amounts of silicon adhesive to both ends of silicon tube A

⑦

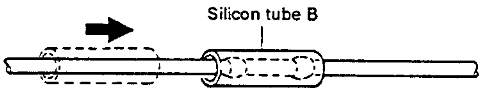

Heat (about 120° C)
Silicon tube A

Apply heat (about 120° C) to contract silicon tube A.

Note: Use an industrial drier or soldering iron as the heat source.

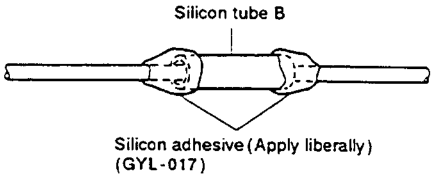
Check that the silicon adhesive has been applied evenly without air pockets etc. If there are any pockets etc, apply additional silicon adhesive.

⑧


Silicon tube B

Slip silicon tube B over silicon tube A.
(With the center of silicon tube B also corresponding to the solder section)

⑨


Silicon tube B
Silicon adhesive (Apply liberally)
(GYL-017)

Apply liberal amounts of silicon adhesive to both ends of silicon tube B.

Fig. 10-4-2 Anode cable joining procedure (2)

# 11. REMOTE CONTROL UNIT〔CU-SD044 (AXD1199)〕

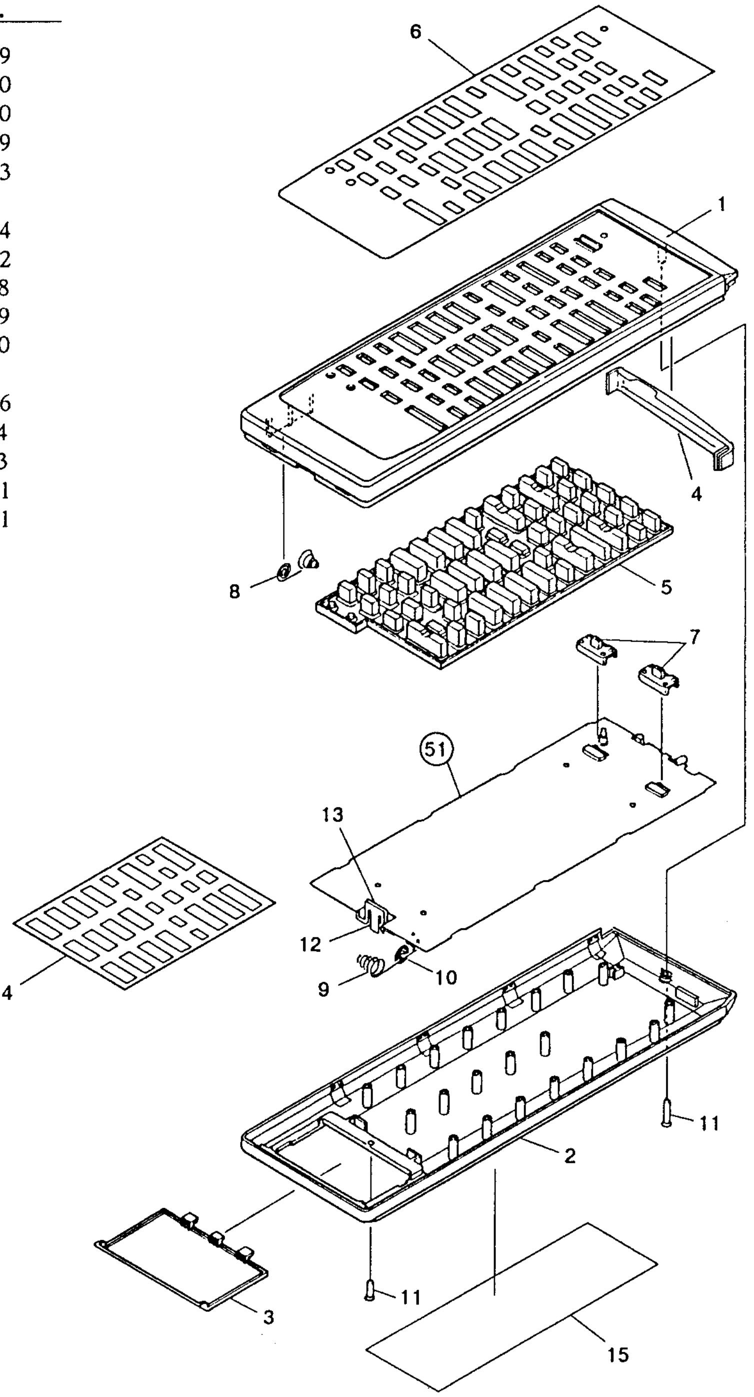
## 11.1 EXPLODED VIEWS AND PARTS LIST

*NOTES:*

- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by " ◉ " are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

**Parts List**

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | Case(A) | AZA1289 |
| | 2 | Case(B) | AZA1290 |
| | 3 | Battery cover | AZN1970 |
| | 4 | Filter | AZA1139 |
| | 5 | Rubber sheet | AZA1323 |
| | 6 | Name plate | AZA1324 |
| | 7 | Knob(A) | AZA1142 |
| | 8 | Spring | AZB1268 |
| | 9 | Spring | AZB1269 |
| | 10 | Spring | AZB1270 |
| | 11 | Screw | AZA1146 |
| | 12 | REMOTE POWER (SW1-A) | AZS1084 |
| | 13 | REMOTE POWER (SW1-B) | AZS1083 |
| | 14 | Sheet | AZA1161 |
| | 15 | Label | AZA1321 |
| | 51 | PCB board | |



## 11.2 ELECTRICAL PARTS LIST

*NOTES:*

- *Parts without part number cannot be supplied.*
- *Parts marked by " ◉ " are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

*Ex.1 When there are 2 effective digits(any digit apart from 0), such as 560 ohm and 47k ohm(tolerance is shown by J=5%, and K=10%).*

$560\,\Omega \rightarrow 56 \times 10^1 \rightarrow 561$ ······ *RD1/4PS*$\boxed{5}\boxed{6}\boxed{1}$*J*
$47k\,\Omega \rightarrow 47 \times 10^3 \rightarrow 473$ ······ *RD1/4PS*$\boxed{4}\boxed{7}\boxed{3}$*J*
$0.5\,\Omega \rightarrow 0R5$ ······ *RN2H*$\boxed{0}\boxed{R}\boxed{5}$*K*
$1\,\Omega \rightarrow 010$ ······ *RS1P*$\boxed{0}\boxed{1}\boxed{0}$*K*

*Ex.2 When there are 3 effective digits(such as in high precision metal film resistors).*

$5.62k\,\Omega \rightarrow 562 \times 10^1 \rightarrow 5621$ ······ *RN1/4SR*$\boxed{5}\boxed{6}\boxed{2}\boxed{1}$*F*

### SEMICONDUCTORS

| Mark | Symbol & Description | Part No. |
|---|---|---|
| | IC1 | PDG068A |
| | IC2 | AZC1232 |
| | IC3 | AZC1231 |
| | Q1 | AZC1229 |
| | Q2 | AZC1230 |
| | D2 | AZC1224 |
| | D4 | AZC1225 |
| | D5 | AZC1226 |
| | D6 – D12 | AZC1228 |

### SWITCHES

| Mark | Symbol & Description | Part No. |
|---|---|---|
| | S01,S03,S04,S06 Slide switch (SR RECALL/USE/LEARN, VDP/VCR/AUX) | AZS1074 |
| | SW1-A (REMOTE POWER) | AZS1084 |
| | SW1-B (REMOTE POWER) | AZS1083 |

### CAPACITORS

| Mark | Symbol & Description | | Part No. |
|---|---|---|---|
| | C1,C2 | (100μF/6.3V) | AZC1253 |
| | C3 | (10μF/16V) | AZC1254 |
| | C4,C5 | (100pF) | AZC1222 |
| | C6,C8 – C10 | (0.01μF) | AZC1220 |
| | C7 | (1000pF) | AZC1221 |

### RESISTORS

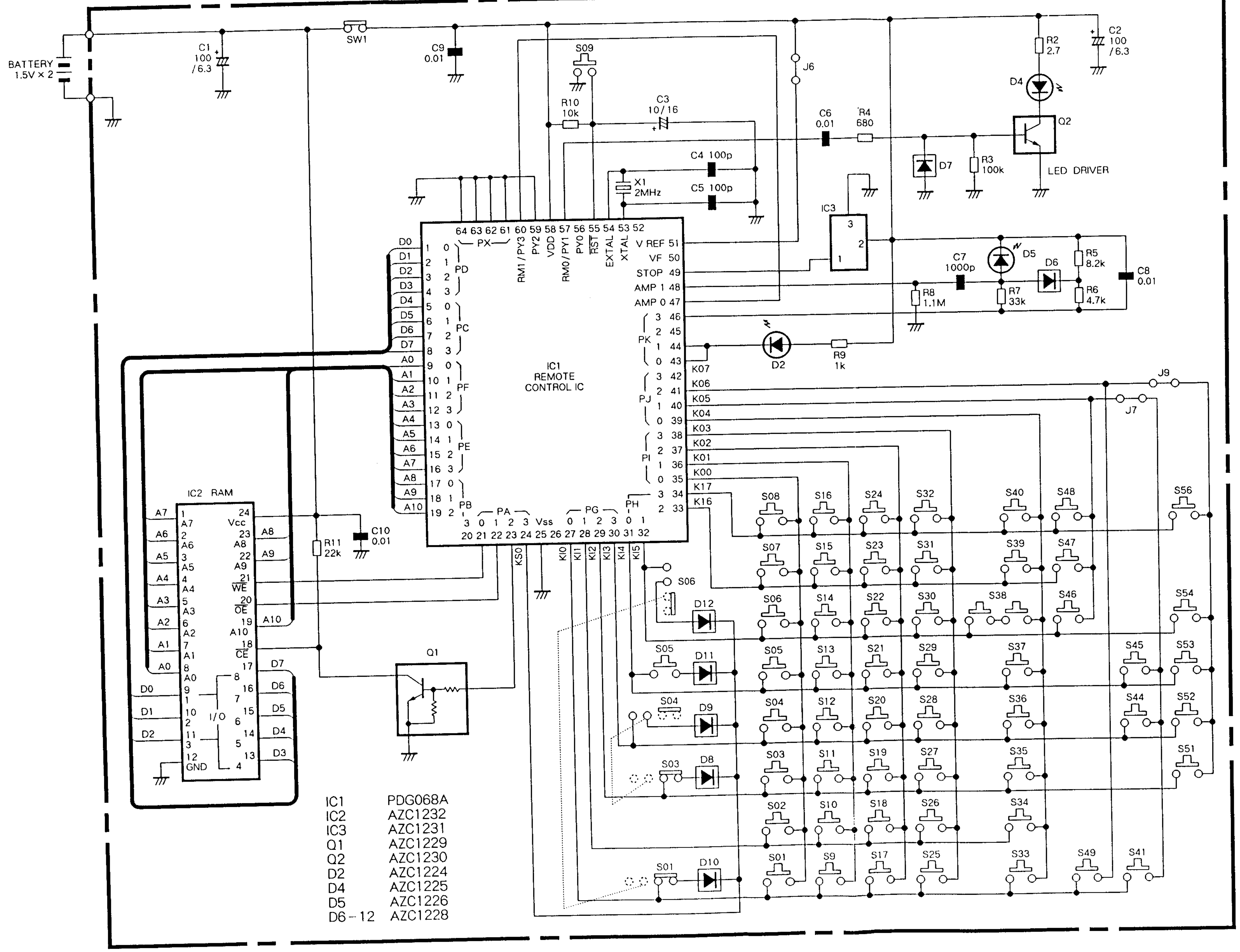
| Mark | Symbol & Description | Part No. |
|---|---|---|
| | R2 (2.7Ω) | AZC1219 |
| | R3 (100kΩ) | AZC1210 |
| | R4 (680Ω) | AZC1217 |
| | R5 (8.2kΩ) | AZC1214 |
| | R6 (4.7kΩ) | AZC1215 |
| | R7 (33kΩ) | AZC1211 |
| | R8 (1.1MΩ) | AZC1261 |
| | R9 (1kΩ) | AZC1216 |
| | R10 (10kΩ) | AZC1213 |
| | R11 (22kΩ) | AZC1212 |

### OTHERS

| Mark | Symbol & Description | Part No. |
|---|---|---|
| | X1 (2.0MHz) | AZC1223 |

## 11.3 SCHEMATIC DIAGRAM

REMOTE CONTROL UNIT (AXD1199)


BATTERY 1.5V × 2
SW1
C1 100 /6.3
C9 0.01
S09
R10 10k
C3 10/16
J6
C6 0.01
R4 680
R2 2.7
D4
Q2
C2 100 /6.3
D7
R3 100k
LED DRIVER
C4 100p
C5 100p
X1 2MHz
IC3
C7 1000p
D5
D6
R5 8.2k
R6 4.7k
C8 0.01
R8 1.1M
R7 33k
IC1 REMOTE CONTROL IC
PX PD PC PF PE PB PA PG PH PK PJ PI
RM1/PY3 PY2 VDD RM0/PY1 PY0 RST EXTAL XTAL
V REF VF STOP AMP 1 AMP 0 Vss
D2
R9 1k
K07 K06 K05 K04 K03 K02 K01 K00 K17 K16
KS0 KI0 KI1 KI2 KI3 KI4 KI5
J9
J7
IC2 RAM
Vcc WE OE CE I/O GND
A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 A10
D0 D1 D2 D3 D4 D5 D6 D7
R11 22k
C10 0.01
Q1
S06 S04 S03 S01
D12 D11 D9 D8 D10
S08 S07 S06 S05 S04 S03 S02 S01
S16 S15 S14 S13 S12 S11 S10 S9
S24 S23 S22 S21 S20 S19 S18 S17
S32 S31 S30 S29 S28 S27 S26 S25
S40 S39 S38 S37 S36 S35 S34 S33
S48 S47 S46 S45 S44 S49 S41
S56 S54 S53 S52 S51

| | |
|---|---|
| IC1 | PDG068A |
| IC2 | AZC1232 |
| IC3 | AZC1231 |
| Q1 | AZC1229 |
| Q2 | AZC1230 |
| D2 | AZC1224 |
| D4 | AZC1225 |
| D5 | AZC1226 |
| D6－12 | AZC1228 |

1. RESISTORS :
Indicated in Ω, 1/4W, 1/6W and 1/8W, ±5% tolerance unless otherwise noted k ; kΩ, M ; MΩ, (F) ; ±1%, (G) ; ±2%, (K) ; ±10%, (M) ; ±20% tolerance.

2. CAPACITORS :
Indicated in capacity (μF)/voltage (V) unless otherwise noted p ; pF. Indication without voltage is 50V except electrolytic capacitor.

3. OTHERS :
➡ ; Signal route.
⊘ ; Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
※ marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

4. SWITCHES : (The underlined indicates the switch position)
SW1 : REMOTE POWER

| | LD | VCR1 | VCR2 |
|---|---|---|---|
| S01 | ON | OFF | OFF |
| S06 | OFF | OFF | ON |

| | SR RECALL | USE | LEARN |
|---|---|---|---|
| S03 | ON | OFF | OFF |
| S04 | OFF | OFF | ON |

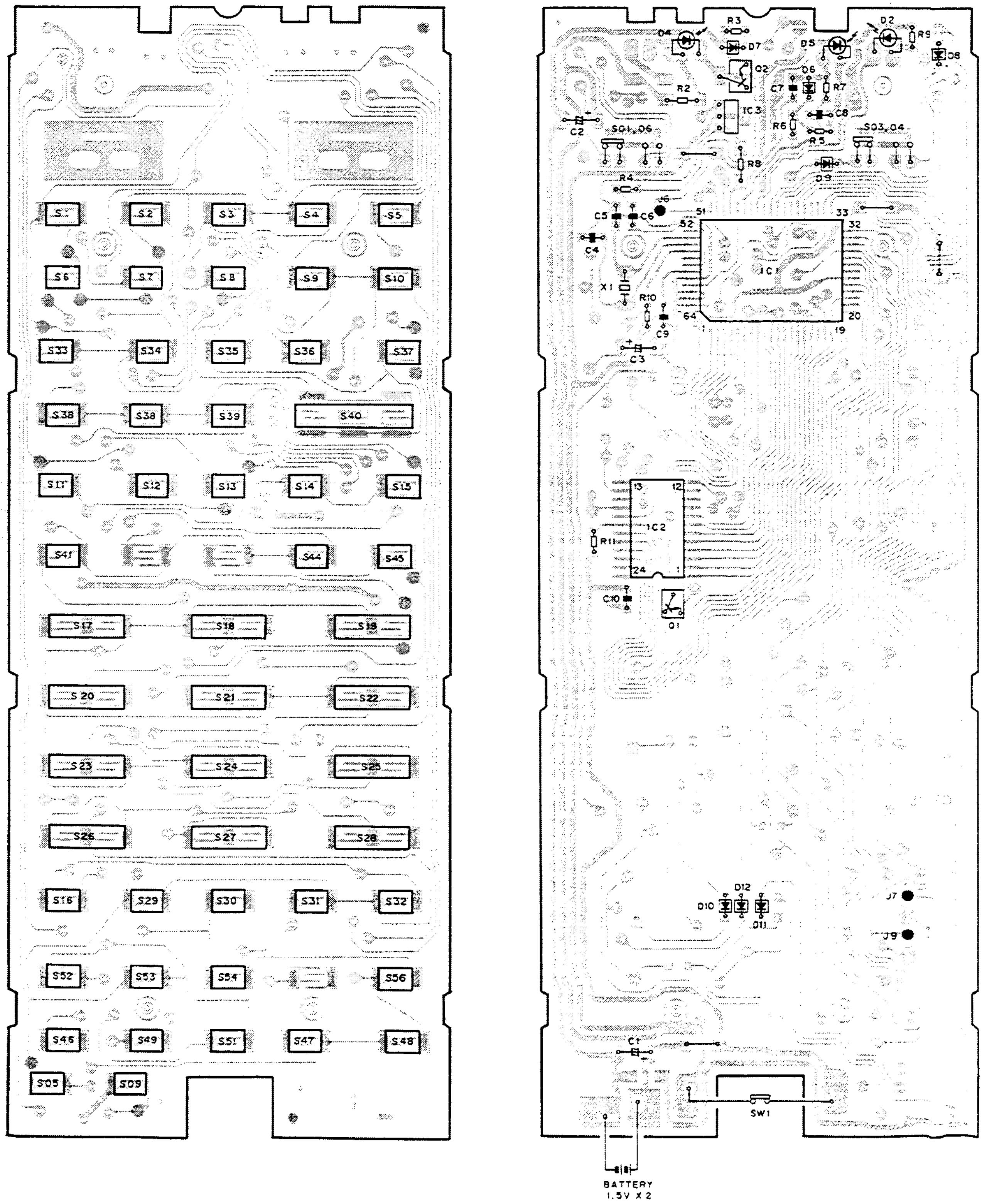
S05 : M－CLR
S09 : RESET

S1 : TV ⎤
S2 : LD ⎥ POWER
S3 : VCR1 ⎥
S4 : VCR2 ⎦
S5 : SLEEP
S6 : TV ⎤
S7 : LD ⎥ INPUT
S8 : VIDEO 1 ⎥ SELECTOR
S9 : VIDEO2 ⎥
S10 : VIDEO3 ⎦
S11 : － ⎤ TV CHANNEL
S12 : ＋ ⎦
S13 : MUTE
S14 : － ⎤ VOLUME
S15 : ＋ ⎦
S16 : P IN P
S17 : 1
S18 : 2
S19 : 3
S20 : 4
S21 : 5
S22 : 6
S23 : 7
S24 : 8
S25 : 9
S26 : 0
S27 : CH SCAN

S28 : CH RETURN
S29 : INPUT
S30 : MULTI
S31 : STILL
S32 : DPO
S33 : ⏮/VCR CH － ⎤
S34 : ⏭/VCR CH ＋ ⎥
S35 : ⏸/⏭ ⎥
S36 : ⏪/⏪ ⎥
S37 : ⏩/⏩ ⎥ LD/VCR
S38 : ····/REC ⎥
S39 : ■/⏏ ⎥
S40 : ▶ ⎥
S41 : MTS ⎥
S44 : DISPLAY ⎥
S45 : D-SOUND EXPANSION
S46 : STD/AV MEM ⎥
S47 : ◀ ⎤ ADJUST ⎦
S48 : ▶ ⎦
S49 : PICTURE
S51 : SOUND
S52 : SWAP
S53 : SHIFT
S54 : STROBE
S56 : VNR

NOTE :
–▭– : Indicates a chip resistor.
–▮– : Indicates a chip capacitor.
: Indicates a chip transistor.
: Indicates a chip diode.

## 11.4 P.C.BOARD PATTERN


S1
S2
S3
S4
S5
S6
S7
S8
S9
S10
S33
S34
S35
S36
S37
S38
S38
S39
S40
S11
S12
S13
S14
S15
S41
S44
S45
S17
S18
S19
S20
S21
S22
S23
S24
S25
S26
S27
S28
S16
S29
S30
S31
S32
S52
S53
S54
S56
S46
S49
S51
S47
S48
S05
S09
D4
R3
D7
D5
D2
R9
D8
Q2
D6
C7
R7
R2
IC3
C8
C2
S01,06
R6
R5
S03,04
R8
D9
R4
J6
C5
C6
51
52
33
32
C4
IC1
X1
R10
64
20
C9
1
19
C3
13
12
IC2
R11
24
1
C10
Q1
D12
D10
D11
J7
J9
C1
SW1
BATTERY
1.5V X 2

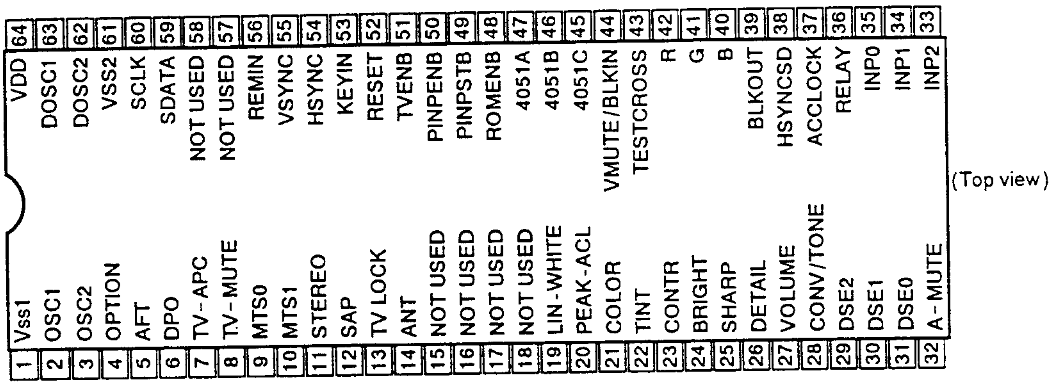
]

# 12. IC INFORMATION

## ■ PDB032B

Control microcomputer

### ● Pin Arrangement


64 VDD
63 DOSC1
62 DOSC2
61 VSS2
60 SCLK
59 SDATA
58 NOT USED
57 NOT USED
56 REMIN
55 VSYNC
54 HSYNC
53 KEYIN
52 RESET
51 TVENB
50 PINPENB
49 PINPSTB
48 ROMENB
47 4051A
46 4051B
45 4051C
44 VMUTE/BLKIN
43 TESTCROSS
42 R
41 G
40 B
39 BLKOUT
38 HSYNCSD
37 ACCLOCK
36 RELAY
35 INP0
34 INP1
33 INP2
(Top view)
1 Vss1
2 OSC1
3 OSC2
4 OPTION
5 AFT
6 DPO
7 TV-APC
8 TV-MUTE
9 MTS0
10 MTS1
11 STEREO
12 SAP
13 TV LOCK
14 ANT
15 NOT USED
16 NOT USED
17 NOT USED
18 NOT USED
19 LIN-WHITE
20 PEAK-ACL
21 COLOR
22 TINT
23 CONTR
24 BRIGHT
25 SHARP
26 DETAIL
27 VOLUME
28 CONV/TONE
29 DSE2
30 DSE1
31 DSE0
32 A-MUTE

### ● Pin Function

Note ) I : CMOS input O : CMOS output N : N ch open dolein output

<table>
<tr><th>No.</th><th>Pin Name</th><th>I/O</th><th>Function</th><th>Active</th></tr>
<tr><td>1</td><td>VSS1</td><td>I</td><td>GND</td><td></td></tr>
<tr><td>2</td><td>OSC1</td><td>I</td><td rowspan="2">Oscillation terminal for generating the system clock.<br>Connect the ceramic resonator of 4.19MHz.</td><td></td></tr>
<tr><td>3</td><td>OSC2</td><td>O</td><td></td></tr>
<tr><td>4</td><td>OPTION</td><td>I</td><td>OPTION voltage input. (Used assemblies are switched depending on input voltage value.)
<table>
<tr><th>Input voltage (V)</th><th>Used assembly</th><th>Input voltage (V)</th><th>Used assembly</th></tr>
<tr><td>0.00 − 0.47</td><td>—</td><td>2.34 − 2.97</td><td>AWV1172</td></tr>
<tr><td>0.47 − 1.09</td><td>AWV1194</td><td>2.97 − 3.59</td><td>AWV1175</td></tr>
<tr><td>1.09 − 1.72</td><td>AWV1197</td><td>3.59 − 4.22</td><td>AWV1198</td></tr>
<tr><td>1.72 − 2.34</td><td>AWV1195</td><td>4.22 − 5.00</td><td>AWV1196</td></tr>
</table></td><td></td></tr>
<tr><td>5</td><td>AFT</td><td>I</td><td>AFT voltage input. AFT down is requested when the input is less than 1.41 V and AFT up is requested with the input of more than 3.6 V.</td><td></td></tr>
<tr><td>6</td><td>DPO</td><td>I</td><td>Analog voltage input for DPO control.</td><td></td></tr>
<tr><td>7</td><td>TV APC</td><td>O</td><td>APC switching output for TV. When detuning or turning power ON/OFF, TV APC is output.<br>When tuning, it is released when AFT is in 62.5kHz step.</td><td>H</td></tr>
<tr><td>8</td><td>TV MUTE</td><td>O</td><td>MUTE output for TV. When detuning or turning power ON/OFF, TV MUTE is output.<br>When tuning, it is released if AFT is completely tuned.</td><td>H</td></tr>
<tr><td>9</td><td>MTS0 (SAP)</td><td>O</td><td rowspan="2">MTS mode output.
<table>
<tr><th>MTS mode / Pin</th><th>MAIN/SAP</th><th>MAIN</th><th>SAP</th><th>MONO</th></tr>
<tr><td>MTS0</td><td>L</td><td>H</td><td>L</td><td>H</td></tr>
<tr><td>MTS1</td><td>L</td><td>L</td><td>H</td><td>H</td></tr>
</table></td><td>L</td></tr>
<tr><td>10</td><td>MTS1 (MAIN)</td><td>O</td><td>L</td></tr>
</table>

<table>
<tr><th>No.</th><th>Pin Name</th><th>I/O</th><th>Function</th><th>Active</th></tr>
<tr><td>11</td><td>STEREO</td><td>I</td><td rowspan="2">Broadcast format deciding input.
<table>
<tr><th></th><th>STEREO/SAP</th><th>SAP</th><th>STEREO</th><th>MONO</th></tr>
<tr><td>STEREO</td><td>L</td><td>H</td><td>L</td><td>H</td></tr>
<tr><td>SAP</td><td>L</td><td>L</td><td>H</td><td>H</td></tr>
</table></td><td>L</td></tr>
<tr><td>12</td><td>SAP</td><td>I</td><td>L</td></tr>
<tr><td>13</td><td>TV LOCK</td><td>I</td><td>PLL lock detection input. Decide the PLL IC(TD6359P)is locked with the data sent from the microcomputer.</td><td>L</td></tr>
<tr><td>14</td><td>ANT</td><td>0</td><td><table>
<tr><td>ANTENNA - 1</td><td>L</td></tr>
<tr><td>ANTENNA - 2</td><td>H</td></tr>
</table></td><td></td></tr>
<tr><td>15</td><td>Not used</td><td>I</td><td>Not used. (Connect to Vss)</td><td></td></tr>
<tr><td>16</td><td>N. C.</td><td>O</td><td>Not used.</td><td></td></tr>
<tr><td>17</td><td>N. C.</td><td>N</td><td>Not used.</td><td></td></tr>
<tr><td>18</td><td>N. C.</td><td>N</td><td>Not used.</td><td></td></tr>
<tr><td>19</td><td>LIN - WHITE</td><td>N</td><td>Control output of linear white circuit.
<table>
<tr><td>LINEAR WHITE ON</td><td>H</td></tr>
<tr><td>LINEAR WHITE OFF</td><td>L</td></tr>
</table></td><td>L</td></tr>
<tr><td>20</td><td>PAEK - ACL</td><td>N</td><td>Control output of PEAK - ACL circuit.
<table>
<tr><td>PEAK ACL ON</td><td>H</td></tr>
<tr><td>PEAK ACL OFF</td><td>L</td></tr>
</table></td><td>L</td></tr>
<tr><td>21</td><td>COLOR</td><td>N</td><td>PWM output for color level control.</td><td>H</td></tr>
<tr><td>22</td><td>TINT</td><td>N</td><td>PWM output for tint level control.</td><td>H</td></tr>
<tr><td>23</td><td>CONTR</td><td>N</td><td>PWM output for contrast level control.</td><td>H</td></tr>
<tr><td>24</td><td>BRIGHT</td><td>N</td><td>PWM output for brightness level control.</td><td>H</td></tr>
<tr><td>25</td><td>SHARP</td><td>N</td><td>PWM output for sharpness level control.</td><td>H</td></tr>
<tr><td>26</td><td>DETAIL</td><td>N</td><td>PWM output for detail level control.</td><td>H</td></tr>
<tr><td>27</td><td>VOLUME</td><td>N</td><td>PWM output for volume level control.</td><td>H</td></tr>
<tr><td>28</td><td>CONV/TONE</td><td>N</td><td>PWM output for convergence and sound quality level control.</td><td>H</td></tr>
<tr><td>29</td><td>DSE2</td><td>O</td><td rowspan="3">DSE (Dynamic Sound Expansion) mode control output.
<table>
<tr><th>DSE / Pin Name</th><th>DSE OFF</th><th>THEATER</th><th>MUSIC</th><th>S. STEREO</th></tr>
<tr><td>DSE2</td><td>L</td><td>H</td><td>L</td><td>H</td></tr>
<tr><td>DSE1</td><td>L</td><td>L</td><td>H</td><td>H</td></tr>
<tr><td>DSE0</td><td>L</td><td>H</td><td>H</td><td>L</td></tr>
</table></td><td></td></tr>
<tr><td>30</td><td>DSE1</td><td>O</td><td></td></tr>
<tr><td>31</td><td>DSE0</td><td>O</td><td></td></tr>
<tr><td>32</td><td>AMUTE</td><td>O</td><td>AMUTE output. When selecting MUTE mode, switching input and turning power ON/OFF, AMUTE is output.</td><td>H</td></tr>
<tr><td>33</td><td>INP2</td><td>O</td><td rowspan="3">Input switching signal output.

● AWV1194 and AWV1197
<table>
<tr><th>Function / Pin Name</th><th>TV</th><th>VDP</th><th>VIDEO</th></tr>
<tr><td>INP0</td><td>H</td><td>L</td><td>L</td></tr>
<tr><td>INP1</td><td>H</td><td>L</td><td>H</td></tr>
<tr><td>INP2</td><td>—</td><td>—</td><td>—</td></tr>
</table>

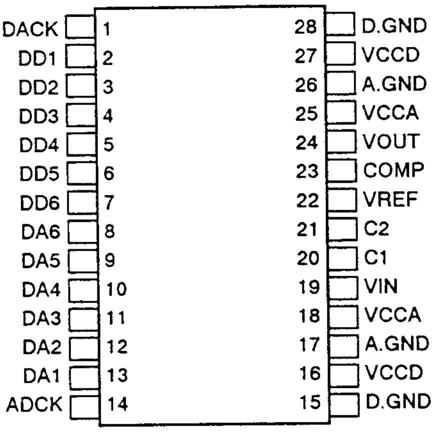
● Excepting AWV1194 and AWV1197
<table>
<tr><th>Function / Pin Name</th><th>TV</th><th>VDP</th><th>VIDEO - 1</th><th>VIDEO - 2</th><th>VIDEO - 3</th></tr>
<tr><td>INP0</td><td>H</td><td>H</td><td>L</td><td>L</td><td>H</td></tr>
<tr><td>INP1</td><td>H</td><td>L</td><td>H</td><td>L</td><td>H</td></tr>
<tr><td>INP2</td><td>L</td><td>L</td><td>L</td><td>L</td><td>H</td></tr>
</table></td><td></td></tr>
<tr><td>34</td><td>INP1</td><td>O</td><td></td></tr>
<tr><td>35</td><td>INP0</td><td>O</td><td></td></tr>
</table>

<table>
<tr><th>No.</th><th>Pin Name</th><th>I/O</th><th>Function</th><th>Active</th></tr>
<tr><td>36</td><td>RELAY</td><td>O</td><td>Power relay control signal output.<table><tr><td>POWER ON</td><td>L</td></tr><tr><td>POWER OFF</td><td>H</td></tr></table></td><td>L</td></tr>
<tr><td>37</td><td>ACCLOCK</td><td>I</td><td>AC clock detection input. Used for time control for the sleep timer and auto power off and for detection of AC power OFF. Dummy reset (software reset) is generated when no AC clock is supplied for 100 msec.</td><td></td></tr>
<tr><td>38</td><td>HSYNCSD</td><td>I</td><td>Horizontal sync count input for the tuner AFT. H-SYNC is counted with the cycle of 0.99 msec, and when the counted amount is from 6 to 8, the system decides that a station existes.</td><td></td></tr>
<tr><td>39</td><td>BLKOUT</td><td>O</td><td>OSD blanking output.</td><td>H</td></tr>
<tr><td>40</td><td>B</td><td>O</td><td>OSD character data output.</td><td>H</td></tr>
<tr><td>41</td><td>G</td><td>O</td><td></td><td>H</td></tr>
<tr><td>42</td><td>R</td><td>O</td><td></td><td>H</td></tr>
<tr><td>43</td><td>TESTCROSS</td><td>O</td><td>The switch (TC4066BP) is controlled to switch the G output to Y when a test cross is generated.</td><td>H</td></tr>
<tr><td>44</td><td>VMUTE/BLKIN</td><td>I/O</td><td>VIDEO MUTE output and blanking (no-signal) detection input.<br>Functions as an input port under normal conditions to detect a no-signal condition for automatic power off. VMUTE is output when generating the test cross, when switching inputs and when turning the power on or off.</td><td></td></tr>
<tr><td>45</td><td>4051C</td><td>N</td><td>Analog multiplexer switching output of D/A converter control.<table><tr><th></th><th>4051C</th><th>4051B</th><th>4051A</th></tr><tr><td>BASS</td><td>L</td><td>L</td><td>L</td></tr><tr><td>TREBLE</td><td>L</td><td>L</td><td>H</td></tr><tr><td>BALANCE</td><td>L</td><td>H</td><td>L</td></tr><tr><td>CONVERGENCE R-H</td><td>L</td><td>H</td><td>H</td></tr><tr><td>CONVERGENCE R-V</td><td>H</td><td>L</td><td>L</td></tr><tr><td>CONVERGENCE B-H</td><td>H</td><td>L</td><td>H</td></tr><tr><td>CONVERGENCE B-V</td><td>H</td><td>H</td><td>L</td></tr></table></td><td></td></tr>
<tr><td>46</td><td>4051B</td><td>N</td><td></td><td></td></tr>
<tr><td>47</td><td>4051A</td><td>N</td><td></td><td></td></tr>
<tr><td>48</td><td>ROMENB</td><td>N</td><td>Chip enable output for EAROM (M6M80041P).</td><td>L</td></tr>
<tr><td>49</td><td>PINPSTB</td><td>N</td><td>PINP data strobe.</td><td>L</td></tr>
<tr><td>50</td><td>PINPENB</td><td>N</td><td>PINP data enable.</td><td>L</td></tr>
<tr><td>51</td><td>TVENB</td><td>N</td><td>PLL data enable. Use for output the serial data to PLL (TD6359P).</td><td>H</td></tr>
<tr><td>52</td><td>RESET</td><td>I</td><td>System reset. Reset is done by applying L for more than 0.95 μsec (when OSC=4.19 MHz).</td><td>L</td></tr>
<tr><td>53</td><td>KEYIN</td><td>I</td><td>Main unit key scan signal (serial) input.</td><td></td></tr>
<tr><td>54</td><td>HSYNC</td><td>I</td><td>Synchronizing signal input for OSD.</td><td>H</td></tr>
<tr><td>55</td><td>VSYNC</td><td>I</td><td></td><td>H</td></tr>
<tr><td>56</td><td>REMIN</td><td>I</td><td>Remote control signal input. Decipher the SR format signal.</td><td></td></tr>
<tr><td>57</td><td>NOT USED</td><td>N</td><td>Not used. (Connect to Vss)</td><td></td></tr>
<tr><td>58</td><td>NOT USED</td><td>N</td><td>Not used. (Connect to Vss)</td><td></td></tr>
<tr><td>59</td><td>SDATA</td><td>I/N</td><td>Serial data input and output. Use for interface with EAROM, PLL and PINP.</td><td>H</td></tr>
<tr><td>60</td><td>SCLK</td><td>O</td><td>Serial transmission clock.</td><td>H</td></tr>
<tr><td>61</td><td>VSS2</td><td></td><td>GND for OSD.</td><td>H</td></tr>
<tr><td>62</td><td>DOSC2</td><td>O</td><td>Clock oscillation terminal for character generator.<br>Connect the LC for 6MHz-10MHz oscillation.</td><td></td></tr>
<tr><td>63</td><td>DOSC1</td><td>I</td><td></td><td></td></tr>
<tr><td>64</td><td>VDD</td><td>I</td><td>Apply +5V power supply.</td><td></td></tr>
</table>

## ■ MB40176PF

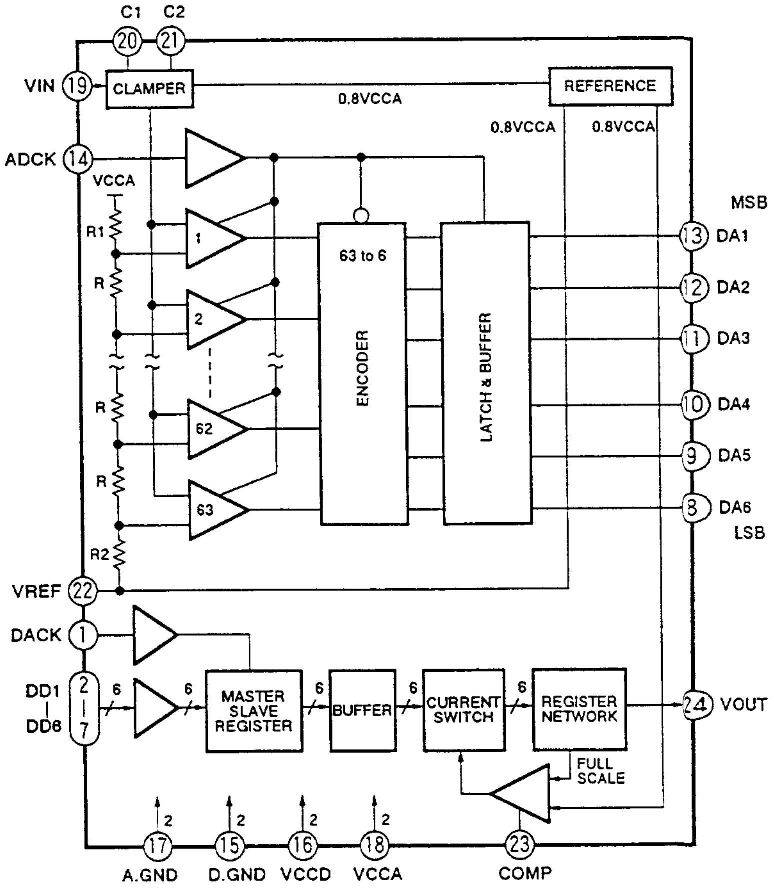
A/D•D/A converter

### ● Pin Arrangement


DACK 1
DD1 2
DD2 3
DD3 4
DD4 5
DD5 6
DD6 7
DA6 8
DA5 9
DA4 10
DA3 11
DA2 12
DA1 13
ADCK 14
28 D.GND
27 VCCD
26 A.GND
25 VCCA
24 VOUT
23 COMP
22 VREF
21 C2
20 C1
19 VIN
18 VCCA
17 A.GND
16 VCCD
15 D.GND

(Top view)

### ● Block Diagram


C1
C2
20
21
VIN
19
CLAMPER
REFERENCE
0.8VCCA
0.8VCCA
0.8VCCA
ADCK
14
VCCA
R1
R
R
R
R2
1
2
62
63
63 to 6
ENCODER
LATCH & BUFFER
MSB
13 DA1
12 DA2
11 DA3
10 DA4
9 DA5
8 DA6
LSB
VREF
22
DACK
1
DD1
DD6
2
7
6
6
MASTER SLAVE REGISTER
6
BUFFER
6
CURRENT SWITCH
6
REGISTER NETWORK
24 VOUT
FULL SCALE
2
2
2
2
17
15
16
18
23
A.GND
D.GND
VCCD
VCCA
COMP

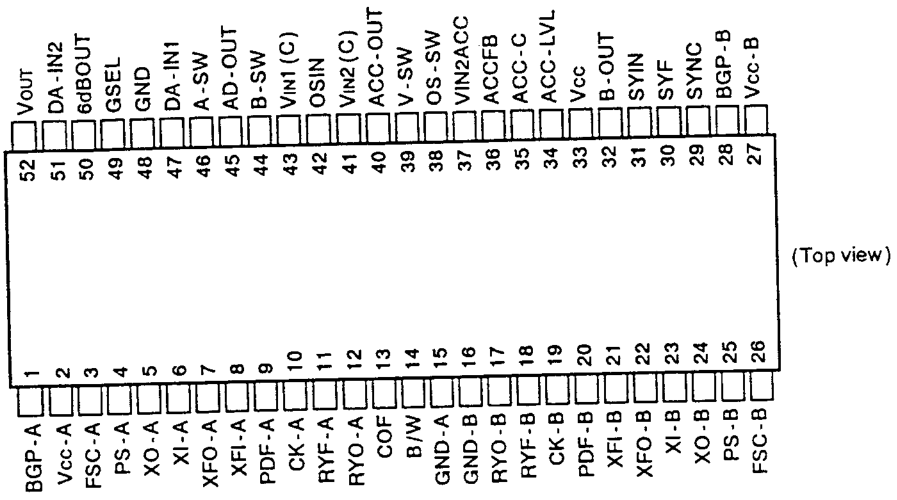
### ● Pin Function

| No. | Pin Name | Function | No. | Pin Name | Function |
|---|---|---|---|---|---|
| 1 | DACK | D/A clock input | 15 | D.GND | GND for digital section |
| 2 | DD1 | MSB | 16 | VCCD | VCC for digital section |
| 3 | DD2 |  | 17 | A.GND | GND for analog section |
| 4 | DD3 | Digital signal input | 18 | VCCA | VCC for analog section |
| 5 | DD4 |  | 19 | VIN | Analog signal input |
| 6 | DD5 |  | 20 | C1 | Connect the capacitor for clamp |
| 7 | DD6 | LSB | 21 | C2 |  |
| 8 | DA6 | LSB | 22 | VREF | Reference voltage output |
| 9 | DA5 |  | 23 | COMP | Connect the capacitor for phase compensation |
| 10 | DA4 | Digital signal output | 24 | VOUT | Analog signal output |
| 11 | DA3 |  | 25 | VCCA | VCC for analog section |
| 12 | DA2 |  | 26 | A.GND | GND for analog section |
| 13 | DA1 | MSB | 27 | VCCD | VCC for digital section |
| 14 | ADCK | A/D clock input | 28 | D.GND | GND for digital section |

## ■ MB3511P

PLL IC for PINP

### • Pin Arrangement

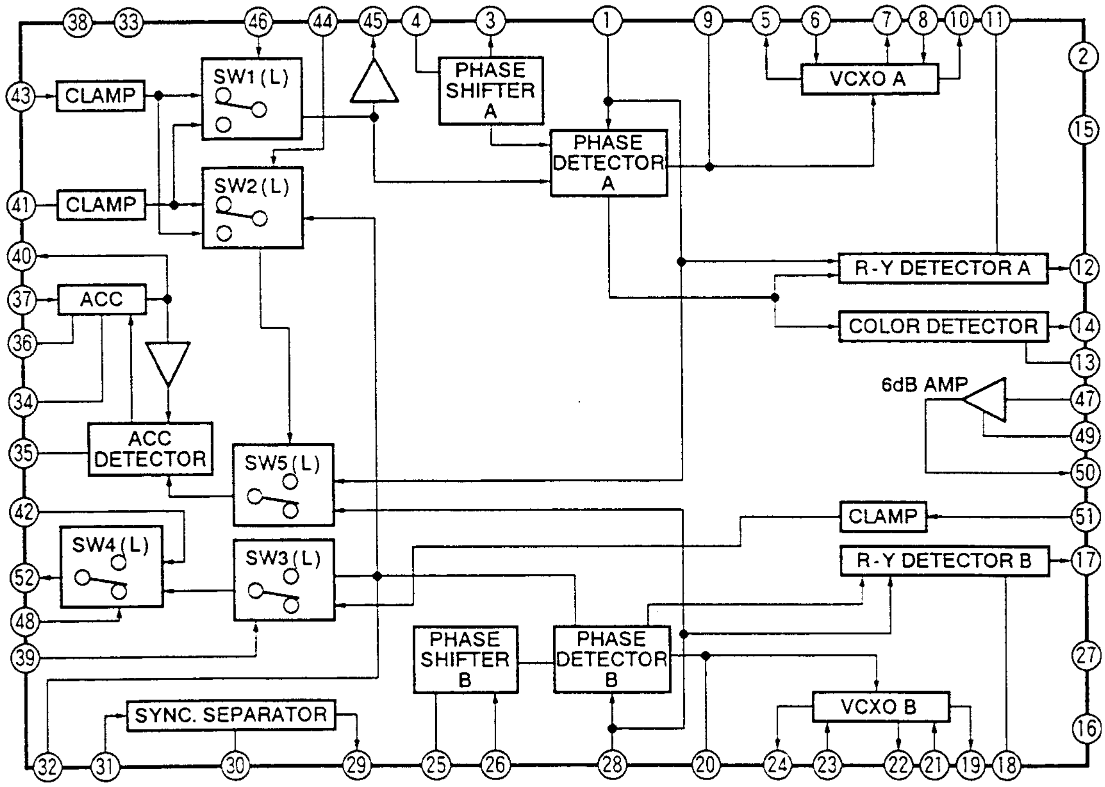

VOUT 52
DA-IN2 51
6dBOUT 50
GSEL 49
GND 48
DA-IN1 47
A-SW 46
AD-OUT 45
B-SW 44
VIN1(C) 43
OSIN 42
VIN2(C) 41
ACC-OUT 40
V-SW 39
OS-SW 38
VIN2ACC 37
ACCFB 36
ACC-C 35
ACC-LVL 34
Vcc 33
B-OUT 32
SYIN 31
SYF 30
SYNC 29
BGP-B 28
Vcc-B 27
(Top view)
1 BGP-A
2 Vcc-A
3 FSC-A
4 PS-A
5 XO-A
6 XI-A
7 XFO-A
8 XFI-A
9 PDF-A
10 CK-A
11 RYF-A
12 RYO-A
13 COF
14 B/W
15 GND-A
16 GND-B
17 RYO-B
18 RYF-B
19 CK-B
20 PDF-B
21 XFI-B
22 XFO-B
23 XI-B
24 XO-B
25 PS-B
26 FSC-B

### • Pin Function

| No. | Pin Name | Control Block | Function | Remark | No. | Pin Name | Control Block | Function | Remark |
|---|---|---|---|---|---|---|---|---|---|
| 1 | BGP-A | Sub-picture A | Burst gate pulse input | CMOS | 16 | GND-B | Main-picture B | Ground | GND |
| 2 | Vcc-A | | Apply +5V power supply voltage | 5V | 17 | RYO-B | | R-Y detector output | CMOS |
| 3 | FSC-A | | fsc input | Approx 1Vp-p | 18 | RYF-B | | Connect the capacitor for R-Y detector | – |
| 4 | PS-A | | Phase shifter control input | Open | 19 | CK-B | | 4fsc output | Approx 1Vp-p |
| 5 | XO-A | | Connect to output side of the crystal oscillator | (X'tal) | 20 | PDF-B | | Connect the capacitor for phase detector | – |
| 6 | XI-A | | Connect to intput side of the crystal oscillator | (X'tal) | 21 | XFI-B | | VCXO filter input | – |
| 7 | XFO-A | | VCXO filter output | – | 22 | XFO-B | | VCXO filter output | – |
| 8 | XFI-A | | VCXO filter input | – | 23 | XI-B | | Connect to input side of the crystal oscillator | (X'tal) |
| 9 | PDF-A | | Connect the capacitor for phase detector | – | | | | | |
| 10 | CK-A | | 4fsc output | Approx 1Vp-p | 24 | XO-B | | Connect to output side of the crystal oscillator | (X'tal) |
| 11 | RYF-A | | Connect the capacitor for R-Y detector | – | | | | | |
| 12 | RYO-A | | R-Y detector output | CMOS | 25 | PS-B | | Phase shifter control input | Open |
| 13 | COF | | Connect the capacitor for color detector | – | 26 | PSC-B | | fsc input | Approx 1Vp-p |
| 14 | B/W | | Color detector output (Black & White) | CMOS | 27 | Vcc-B | | Apply +5V power supply voltage | 5V |
| 15 | GND-A | | Ground | GND | 28 | BGP-B | | Burst gate pulse input | CMOS |

| No. | Pin Name | Control Block | Function | Remark | No. | Pin Name | Control Block | Function | Remark |
|---|---|---|---|---|---|---|---|---|---|
| 29 | SYNC | Common section | Composite sync. signal output (sync. detection) | CMOS | 41 | VIN2(C) | Common section | Video 2 (Sub-picture) input with clamp | VIDEO |
| 30 | SYF |  | Connect the capacitor for detecting the composite sync. signal | – | 42 | OSIN |  | On screen input | DCbias |
| 31 | SYIN |  | Composite sync. signal detector input | VIDEO | 43 | VIN1(C) |  | Video 1 (Main-picture) input | VIDEO |
| 32 | B-OUT |  | Main picture output for detecting the composite sync. signal | VIDEO | 44 | B-SW |  | Switch 2 (Change the Main-picture) control input | CMOS |
| 33 | Vcc |  | Apply +5V power supply voltage | 5V | 45 | AD-OUT |  | Sub-picture output (to A/D converter) | VIDEO |
| 34 | ACC-LVL |  | ACC control | – | 46 | A-SW |  | Switch 1 (Change the Sub-picture) control input | CMOS |
| 35 | ACC-C |  | Connect the capacitor for ACC control | – | 47 | DA-IN1 |  | 6dB amp. input (from A/D converter) | VIDEO |
| 36 | ACCFB |  | ACC filter output | – | 48 | GND |  | Ground | GND |
| 37 | VIN2ACC |  | Video 2 (E-E) input | VIDEO | 49 | GSEL |  | Gain control | – |
| 38 | OS-SW |  | On screen control input | CMOS | 50 | 6dBOUT |  | 6dB amp. input | VIDEO |
| 39 | V-SW |  | PINP control input (Video switch) | CMOS | 51 | DA-IN2 |  | Playback signal of the Sub-picture input | VIDEO |
| 40 | ACC-OUT |  | ACC output VIDEO |  | 52 | VOUT |  | Video signal output | VIDEO |

## • Block Diagram


38
33
46
44
45
4
3
1
9
5
6
7
8
10
11
2
15
43
CLAMP
SW1(L)
PHASE SHIFTER A
PHASE DETECTOR A
VCXO A
41
CLAMP
SW2(L)
40
37
ACC
36
34
35
ACC DETECTOR
R-Y DETECTOR A
12
COLOR DETECTOR
14
13
6dB AMP
47
49
50
SW5(L)
42
SW4(L)
52
48
39
SW3(L)
CLAMP
51
R-Y DETECTOR B
17
PHASE SHIFTER B
PHASE DETECTOR B
27
VCXO B
16
SYNC. SEPARATOR
32
31
30
29
25
26
28
20
24
23
22
21
19
18

## • Function of the MB3511P

### *1. PLL section (Separate circuit blocks for the main and sub pictures)*

**Phase Shifter (PS)**

Adjusts the phase of PLL Lock. It can be also used in the opening state. When power is supplied from the power source by separating resistance, retract phase of the PLL is adjusted and tint adjustment can be made.

**Phase Detector (PD)**

Detects the phase shift of PLL. While the BGP (Burst Gate Pulse) is at the "L" level, this detects the phase shift between the burst signal and fsc input and supplies power to the crystal-clock VCO circuit.

**Crystal-Clock VCO section (VCXO)**

Produces signals of 4fsc, which are synchronized with the burst phase by means of PLL. Inserts 1/4 dividing circuit between 4fsc output and fsc input to compound PLL.

**R-Y Detector**

Detects the burst phase in the PAL signals. This block generates the signals of "H" or "L" level according to whether burst advances or retards.

**Color Detector**

Detects whether or not there are burst signals for a sub-picture. When there is no color for a sub-picture, this detector works to restrain the color signals from being generated for the sub-picture. (In the case of a black-and-white screen, this detector goes to "H" level.)

### *2. Switching section (for both the main picture and sub pictures)*

**SW1, SW2**

These are analog switches which distribute the input signals of the main and sub pictures to the two PLL circuits. These switches connect or disconnect the main and sub pictures.

Normally, adjust the control-input level to "H".

As SW1 and SW2 can be controlled independently, the same picture can be also compounded as PINP.

**CLAMP**

A clamper circuit is incorporated into each input line for the video signal, thus clamping can be easily performed when capacity is joined.

**Automatic Color level Control (ACC)**

This circuit is incorporated for the signals of sub pictures, for cases where the color signal level of the tuner output is insufficient or unstable. Gain control for the color signal is made within the range of 0 to 6 dB.

**Sync. Separator**

Detects the sync. range of the main picture and produces a compound sync. signal. To prevent malfunction by color signals, a low-pass filter is connected between the B-OUT terminal (Pin 32) and the SYIN terminal (Pin 31).

**6dB AMP**

Normally, noise in the high-frequency range is eliminated from the D/A converter output by a low-pass filter. A 6dB amplifier compensates for attenuation of the output signal caused by filtering.

When connecting the GSEL terminal (Pin 49) to the Vcc , AMP works as a 6dB amplifier. When connecting LCR, frequency is compensated by a low-pass filter.

**Video Switch (SW3)**

Playback output signals of the main picture and sub pictures are switched to compound PINP.

**On Screen (SW4)**

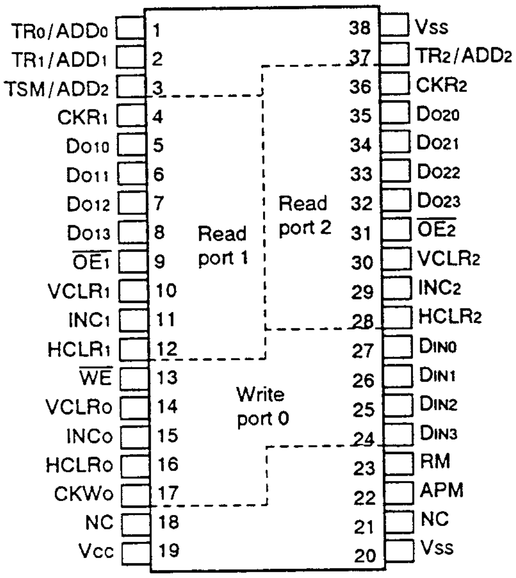
Normally, the levels of the OS-SW terminal (Pin 38) and OSIN terminal (Pin 42) are set at "L".

These are for future use.

## MB81C1501PF

1M bit 3port field construction memory

### Pin Arrangement

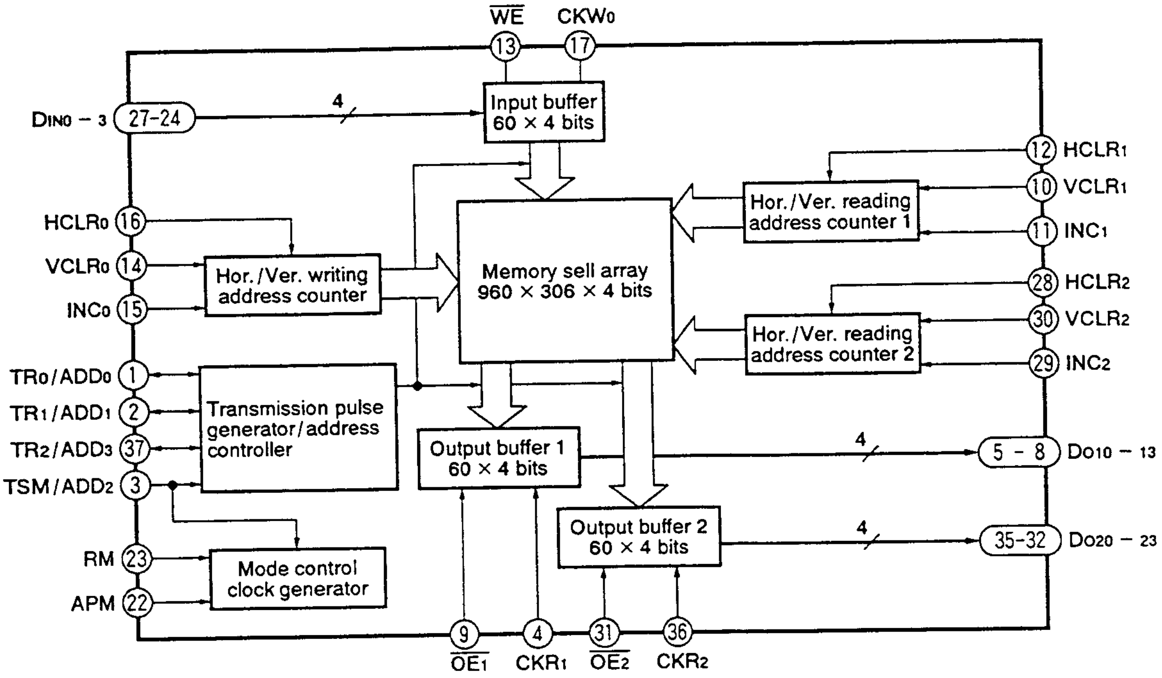

TR$_0$/ADD$_0$ 1
TR$_1$/ADD$_1$ 2
TSM/ADD$_2$ 3
CKR$_1$ 4
D$_{O10}$ 5
D$_{O11}$ 6
D$_{O12}$ 7
D$_{O13}$ 8
$\overline{\mathrm{OE_1}}$ 9
VCLR$_1$ 10
INC$_1$ 11
HCLR$_1$ 12
$\overline{\mathrm{WE}}$ 13
VCLR$_0$ 14
INC$_0$ 15
HCLR$_0$ 16
CKW$_0$ 17
NC 18
Vcc 19
20 Vss
21 NC
22 APM
23 RM
24 D$_{IN3}$
25 D$_{IN2}$
26 D$_{IN1}$
27 D$_{IN0}$
28 HCLR$_2$
29 INC$_2$
30 VCLR$_2$
31 $\overline{\mathrm{OE_2}}$
32 D$_{O23}$
33 D$_{O22}$
34 D$_{O21}$
35 D$_{O20}$
36 CKR$_2$
37 TR$_2$/ADD$_2$
38 Vss
Read port 1
Read port 2
Write port 0

(Top view)

### Pin Function

| No. | Pin name | I/O | Function | No. | Pin name | I/O | Function |
|---|---|---|---|---|---|---|---|
| 1 | TR$_0$/ADD$_0$ | I/O | Write port 0, transmission sync. signal/ address input | 20 | Vss | – | Ground (0V) |
| 2 | TR$_1$/ADD$_1$ | I/O | Read port 1, transmission sync. signal/ address input | 21 | NC | | No connect |
| 3 | TSM/ADD$_2$ | I/O | Tansmission sync. mode enable/address input | 22 | APM | I | Address preset mode enable |
| 4 | CKR$_1$ | I | Port 1, shift signal | 23 | RM | | Recursive mode enable |
| 5 | D$_{O10}$ | O | Port 1, data output | 24 | D$_{IN3}$ | | Port 0, data input |
| 6 | D$_{O11}$ | | | 25 | D$_{IN2}$ | | |
| 7 | D$_{O12}$ | | | 26 | D$_{IN1}$ | | |
| 8 | D$_{O13}$ | | | 27 | D$_{IN0}$ | | |
| 9 | $\overline{\mathrm{OE_1}}$ | I | Port 1, output enable | 28 | HCLR$_2$ | | Port 2, horizontal clear signal |
| 10 | VCLR$_1$ | | Port 1, vertical clear signal | 29 | INC$_2$ | | Port 2, line inclement signal |
| 11 | INC$_1$ | | Port 1, line inclement signal | 30 | VCLR$_2$ | | Port 2, vertical clear signal |
| 12 | HCLR$_1$ | | Port 1, horizontal clear signal | 31 | $\overline{\mathrm{OE_2}}$ | | Port 2, output enable |
| 13 | $\overline{\mathrm{WE}}$ | | Port 0, write enable | 32 | D$_{O23}$ | O | Port 2, data output |
| 14 | VCLR$_0$ | | Port 0, vertical clear signal | 33 | D$_{O22}$ | | |
| 15 | INC$_0$ | | Port 0, line inclement signal | 34 | D$_{O21}$ | | |
| 16 | HCLR$_0$ | | Port 0, horizontal clear signal | 35 | D$_{O20}$ | | |
| 17 | CKW$_0$ | | Port 0, shift signal | 36 | CKR$_2$ | I | Port 2, shift signal |
| 18 | NC | – | No connect | 37 | TR$_2$/ADD$_3$ | | Read port 2, transmission sync. signal / address input |
| 19 | Vcc | | +5V power supply | 38 | Vss | – | Ground |

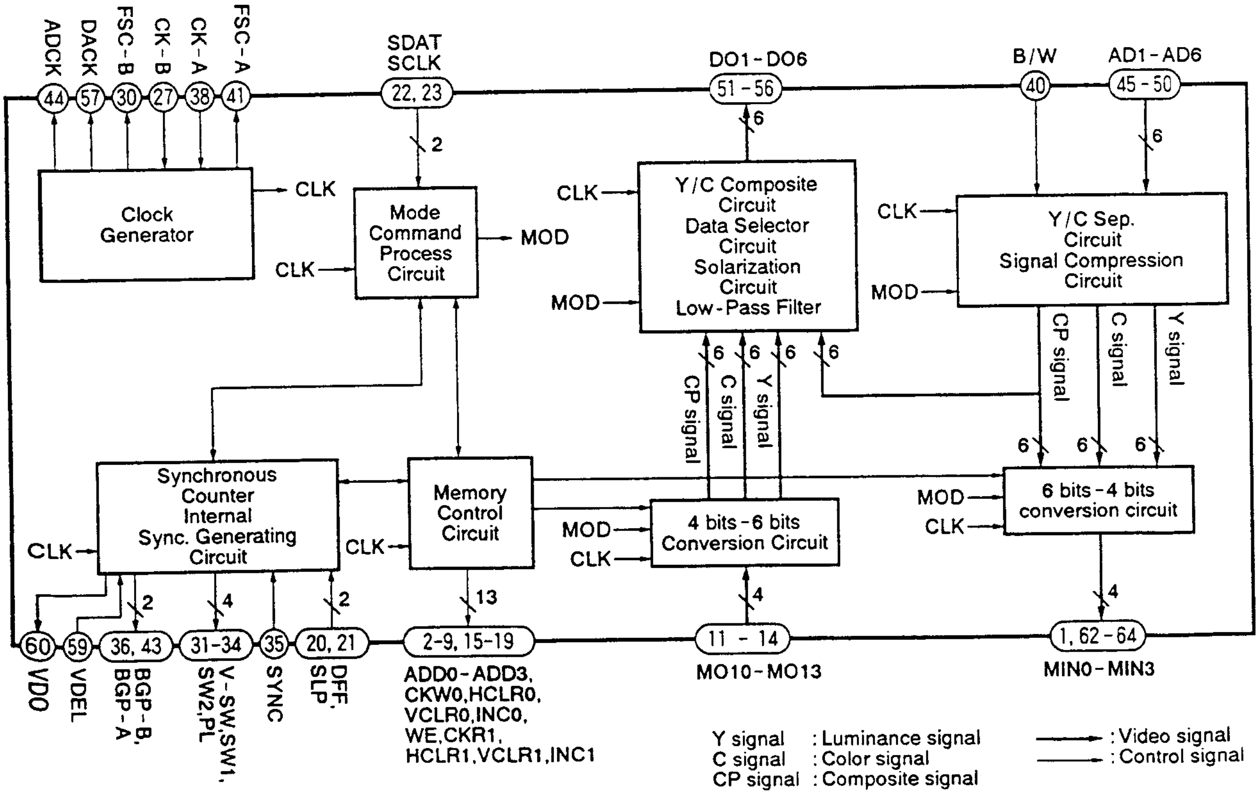
- **Block Diagram**


WE
CKW0
13
17
DIN0 - 3
27-24
4
Input buffer
60 × 4 bits
12
HCLR1
10
VCLR1
11
INC1
HCLR0
16
VCLR0
14
INC0
15
Hor./Ver. writing
address counter
Memory sell array
960 × 306 × 4 bits
Hor./Ver. reading
address counter 1
28
HCLR2
30
VCLR2
29
INC2
Hor./Ver. reading
address counter 2
TR0/ADD0
1
TR1/ADD1
2
TR2/ADD3
37
TSM/ADD2
3
Transmission pulse
generator/address
controller
Output buffer 1
60 × 4 bits
4
5 - 8
DO10 - 13
Output buffer 2
60 × 4 bits
4
35-32
DO20 - 23
RM
23
APM
22
Mode control
clock generator
9
4
31
36
OE1
CKR1
OE2
CKR2

## ■ MB86153APF

Digital special effect controller for TV/VTR

- **Block Diagram**


ADCK
DACK
FSC-B
CK-B
CK-A
FSC-A
44
57
30
27
38
41
SDAT
SCLK
22, 23
2
DO1-DO6
51-56
6
B/W
40
AD1-AD6
45-50
6
Clock
Generator
CLK
Mode
Command
Process
Circuit
CLK
MOD
CLK
Y/C Composite
Circuit
Data Selector
Circuit
Solarization
Circuit
Low-Pass Filter
MOD
CLK
Y/C Sep.
Circuit
Signal Compression
Circuit
MOD
6
6
6
6
CP signal
C signal
Y signal
CP signal
C signal
Y signal
6
6
6
Synchronous
Counter
Internal
Sync. Generating
Circuit
CLK
Memory
Control
Circuit
CLK
MOD
CLK
4 bits-6 bits
Conversion Circuit
MOD
CLK
6 bits-4 bits
conversion circuit
2
4
2
13
4
4
60
59
36, 43
31-34
35
20, 21
2-9, 15-19
11 - 14
1, 62-64
VDO
VDEL
BGP-B,
BGP-A
V-SW,SW1,
SW2,PL
SYNC
DFF,
SLP
ADD0-ADD3,
CKW0,HCLR0,
VCLR0,INC0,
WE,CKR1,
HCLR1,VCLR1,INC1
MO10-MO13
MIN0-MIN3
Y signal : Luminance signal
C signal : Color signal
CP signal : Composite signal
: Video signal
: Control signal

## ● Pin Function

| No. | Pin Name | I/O | Function |
|---|---|---|---|
| 1 | MIN0 | O | Video signal output (memory input) |
| 2 | CKW0 | | Shift signal output for write port of the memory. Perform the clock operation in spite of the write operation. |
| 3 | HCLR0 | | Address pointer control output for write port of the memory (Horizontal clear signal) |
| 4 | INC0 | | Address pointer control output for write port of the memory (Line inclement signal) |
| 5 | VCLR0 | | Address pointer control output for write port of the memory (Vertical clear signal) |
| 6 | WE | | Input control signal for write port of the memory (Write enable signal) |
| 7 | HCLR1 | | Address pointer control for read port of the memory (Horizontal clear signal) |
| 8 | INC1 | | Address pointer control for read port of the memory (Line inclement signal) |
| 9 | VCLR1 | | Address pointer control for read port of the memory (Vertical clear signal) |
| 10 | Vss | – | Ground (0V) |
| 11 | MO13 | IT | Video signal input (memory output) |
| 12 | MO12 | | |
| 13 | MO11 | | |
| 14 | MO10 | | |
| 15 | CKR1 | O | Shift signal output for read port of the memory.<br>Perform the clock operation at the read operation only. |
| 16 | ADD2 | | Address preset output which are 4-bits binary data.<br>It selects a free block among 16-division blocks of the write port. |
| 17 | ADD1 | | |
| 18 | ADD0 | | |
| 19 | ADD3 | | |
| 20 | DFF | ISM | Picture write timing count signal input at the slow mode. |
| 21 | SLP | | Picture write timing signal input at the slow mode. |
| 22 | SCLK | | Mode command serial clock input |
| 23 | SDAT | | Mode command serial data input |
| 24 | RES | | Reset input (When "L" level is input, reset the internal circuit and it becomes analog through mode. Input "L" level when turning the power on.) |
| 25 | TEST | Ic | Test terminal (+5V) |
| 26 | VDD | – | +5V power supply voltage |
| 27 | CK-B | Ic | 4fsc input for the main-picture |
| 28 | CK-B0 | O | 4fsc amp. output for the main-picture |
| 29 | Vss | – | Ground (0V) |
| 30 | FSC-B | O | fsc output for the main-picture<br>(PLL input signal) |

| No. | Pin Name | I/O | Function |
|---|---|---|---|
| 31 | SW1 | O | Switching control of the main and sub pictures. |
| 32 | SW2 | | |
| 33 | V-SW | | |
| 34 | PL | O | Picture in Picture mode indication output<br>Picture in Picture mode : "L"<br>Other mode : "H" |
| 35 | SYNC | IT | Composite sync. input of the main-picture |
| 36 | BGP-B | O | Burst gate pulse output for the main-picture (Color burst section : "L") |
| 37 | NC | – | No connection |
| 38 | CK-A | Ic | 4fsc input for the sub-picture |
| 39 | CK-A0 | O | 4fsc amp. output for the sub-picture |
| 40 | B/W | IT | Decision input of the color/black and white screen of the sub-picture |
| 41 | FSC-A | O | fsc output for the sub-picture<br>(PLL input signal) |
| 42 | Vss | – | Ground (0V) |
| 43 | BGP-A | O | Burst gate pulse output for the sub-picture (Color burst section : "L") |
| 44 | ADCK | | Clock output for A/D conveter |
| 45 | AD1 | IT | MSB |
| 46 | AD2 | | |
| 47 | AD3 | | Video signal input<br>(A/D converter output) |
| 48 | AD4 | | |
| 49 | AD5 | | |
| 50 | AD6 | | LSB |
| 51 | DO6 | O | LSB |
| 5 | DO5 | | |
| 53 | DO4 | | Video signal output<br>(D/A converter input) |
| 54 | DO3 | | |
| 55 | DO2 | | |
| 56 | DO1 | | MSB |
| 57 | DACK | | Clock output for D/A converter |
| 58 | VDD | – | +5V power supply voltage |
| 59 | VDEL | ISM | Interlace control input |
| 60 | VD0 | O | Interlace control output |
| 61 | Vss | – | Ground (0V) |
| 62 | MIN3 | O | Video signal output (Memory input) |
| 63 | MIN2 | | |
| 64 | MIN1 | | |

Note;
IT : TTL interface input
Ic : CMOS interface input
ISM : Schmitt trigger input

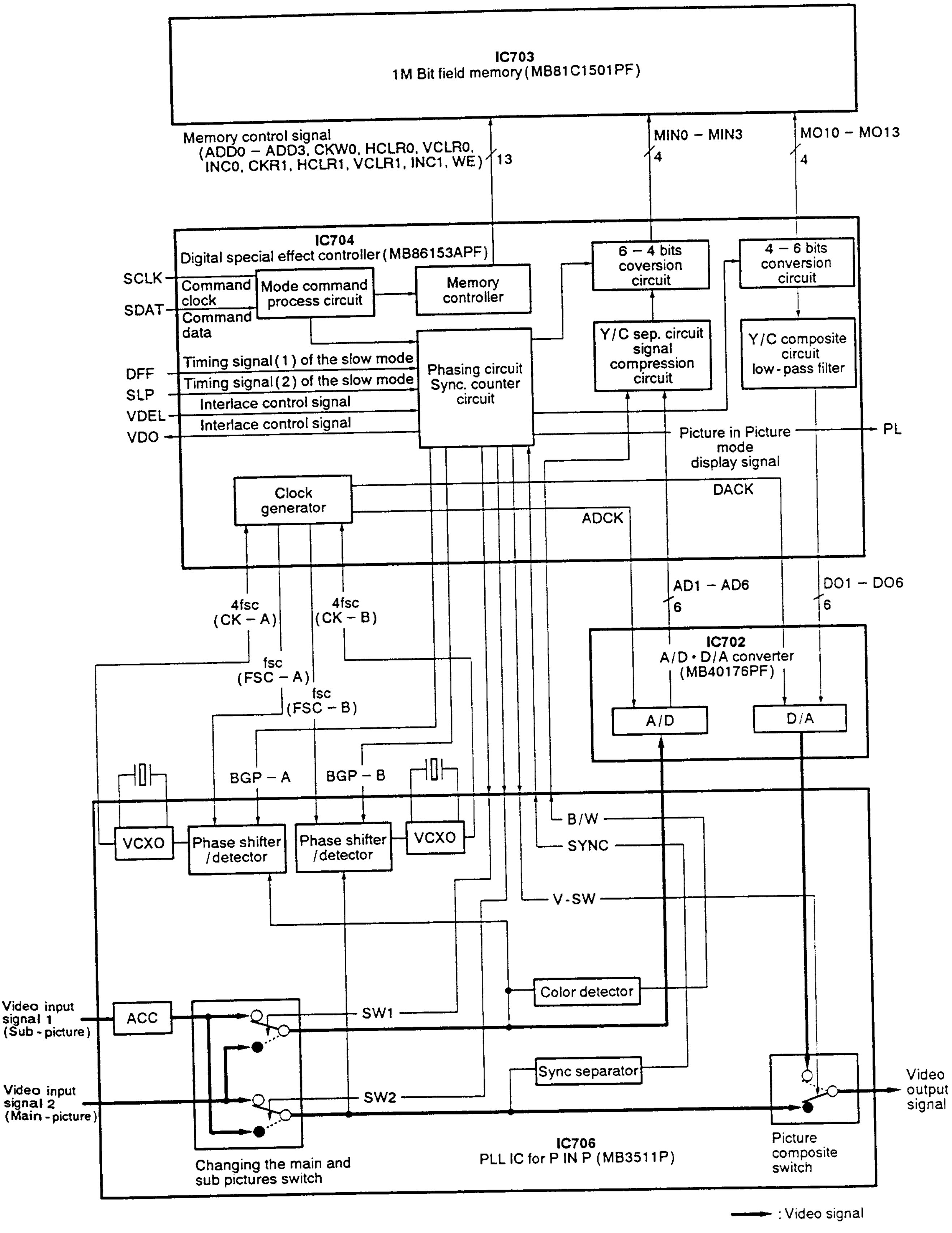
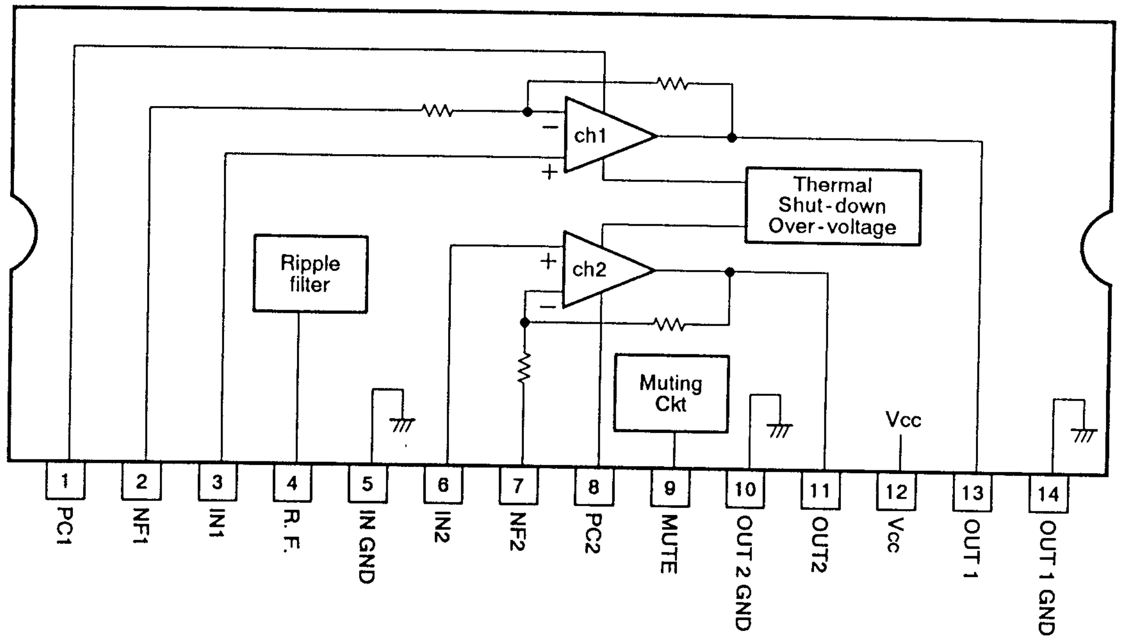

IC703
1M Bit field memory (MB81C1501PF)
Memory control signal
(ADD0 – ADD3, CKW0, HCLR0, VCLR0,
INC0, CKR1, HCLR1, VCLR1, INC1, WE)
13
MIN0 – MIN3
4
MO10 – MO13
4
IC704
Digital special effect controller (MB86153APF)
SCLK
SDAT
Command clock
Command data
Mode command process circuit
Memory controller
6 – 4 bits coversion circuit
4 – 6 bits conversion circuit
Y/C sep. circuit signal compression circuit
Y/C composite circuit low-pass filter
DFF
SLP
VDEL
VDO
Timing signal (1) of the slow mode
Timing signal (2) of the slow mode
Interlace control signal
Interlace control signal
Phasing circuit Sync. counter circuit
Picture in Picture mode display signal
PL
Clock generator
DACK
ADCK
4fsc (CK – A)
4fsc (CK – B)
fsc (FSC – A)
fsc (FSC – B)
AD1 – AD6
6
DO1 – DO6
6
IC702
A/D • D/A converter
(MB40176PF)
A/D
D/A
BGP – A
BGP – B
VCXO
Phase shifter /detector
Phase shifter /detector
VCXO
B/W
SYNC
V-SW
Color detector
Video input signal 1 (Sub-picture)
ACC
SW1
Sync separator
Video input signal 2 (Main-picture)
SW2
Video output signal
Changing the main and sub pictures switch
IC706
PLL IC for P IN P (MB3511P)
Picture composite switch
: Video signal
: Control signal

Fig. 12-1 IC correlation of the PINP assembly

## ■ LA4280

### • Block Diagram

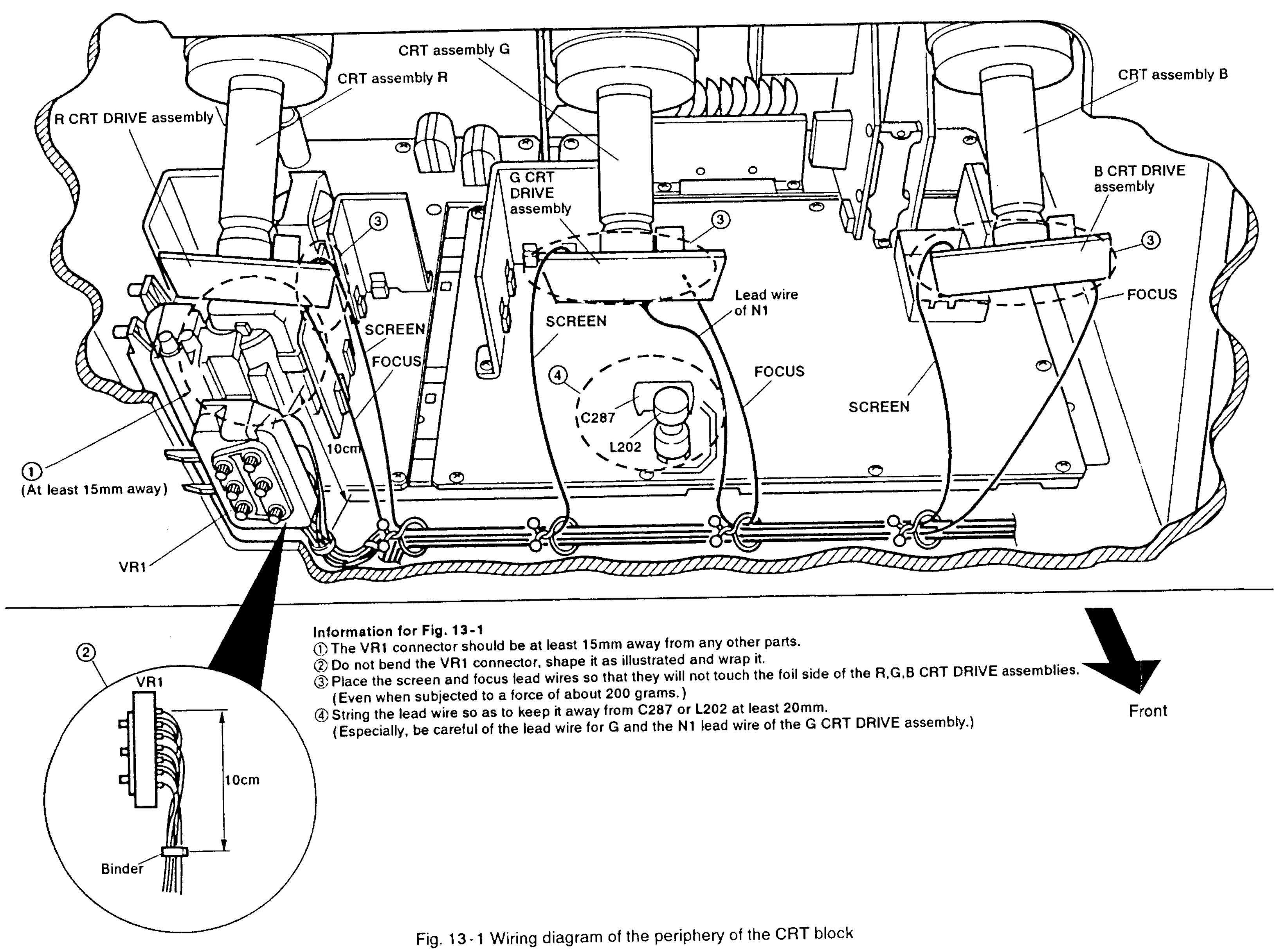

ch1
ch2
Thermal
Shut-down
Over-voltage
Ripple
filter
Muting
Ckt
Vcc
1 PC1
2 NF1
3 IN1
4 R. F.
5 IN GND
6 IN2
7 NF2
8 PC2
9 MUTE
10 OUT 2 GND
11 OUT2
12 Vcc
13 OUT 1
14 OUT 1 GND

### • Pin Function

| No. | Pin Name | Function | No. | Pin Name | Function |
|---|---|---|---|---|---|
| 1 | PC1 | Phase compensation (1) | 8 | PC2 | Phase compensation (2) |
| 2 | NF1 | Feedback (1) | 9 | MUTE | External mute |
| 3 | IN1 | Input (1) | 10 | OUT2 GND | Output side ground (2) |
| 4 | R. F. | Ripple filter | 11 | OUT2 | Output (2) |
| 5 | IN GND | Input side ground | 12 | Vcc | Power supply voltage |
| 6 | IN2 | Input (2) | 13 | OUT1 | Output (1) |
| 7 | NF2 | Feedback (2) | 14 | OUT1GND | Output side ground (1) |

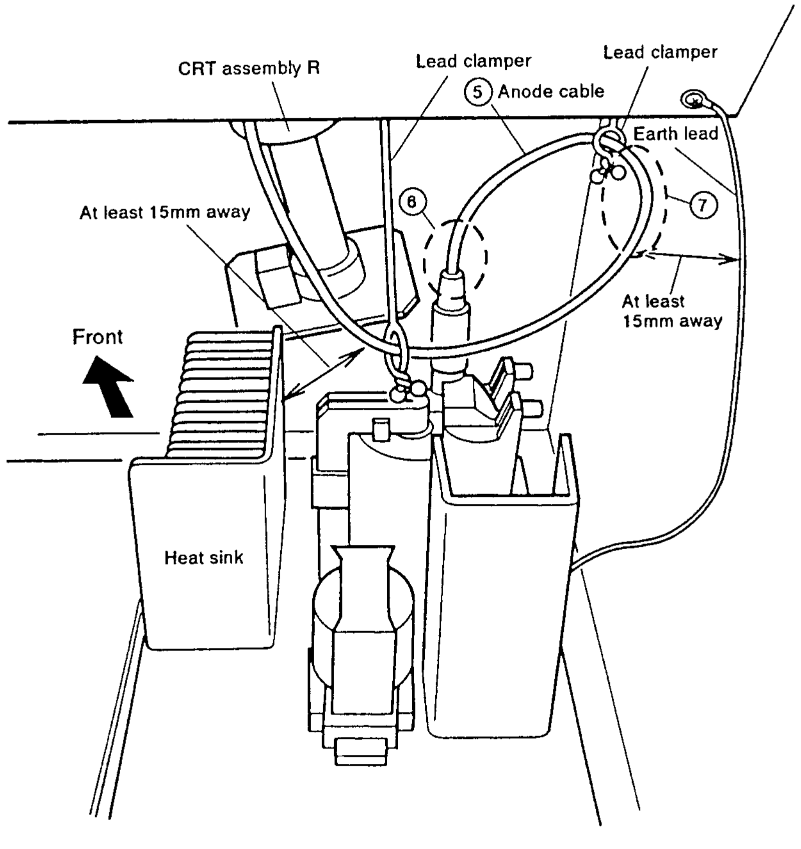
# 13. WIRING DIAGRAM

Reconnect any disconnected lead wires of the SD - P4053 - K. Figs. 13 - 1 and 13 - 2 show the important points for connection of the lead wires. You may find that they were connected differently. Be sure reconnect the lead wires as they were.


CRT assembly G
CRT assembly R
R CRT DRIVE assembly
CRT assembly B
G CRT DRIVE assembly
B CRT DRIVE assembly
③
③
③
③
SCREEN
FOCUS
SCREEN
Lead wire of N1
FOCUS
FOCUS
SCREEN
④
C287
L202
10cm
①
(At least 15mm away)
VR1
②
VR1
10cm
Binder
Front

**Information for Fig. 13-1**
① The VR1 connector should be at least 15mm away from any other parts.
② Do not bend the VR1 connector, shape it as illustrated and wrap it.
③ Place the screen and focus lead wires so that they will not touch the foil side of the R,G,B CRT DRIVE assemblies.
(Even when subjected to a force of about 200 grams.)
④ String the lead wire so as to keep it away from C287 or L202 at least 20mm.
(Especially, be careful of the lead wire for G and the N1 lead wire of the G CRT DRIVE assembly.)

Fig. 13 - 1 Wiring diagram of the periphery of the CRT block


CRT assembly R
Lead clamper
Lead clamper
⑤ Anode cable
Earth lead
At least 15mm away
⑥
⑦
At least 15mm away
Front
Heat sink

**Information for Fig. 13-2**
⑤ The anode cable and other parts should be at least 15mm away from any other parts.
⑥ Loop with a radius of 50mm or more.
⑦ Loop with a radius of 30mm or more.

Fig. 13 - 2 Wiring diagram of the anode cable

*Thank you for purchasing the PIONEER Projection Monitor Receiver.*
*If you have not read the precautionary instructions enclosed with these operating instructions, please do so before proceeding.*
*After learning how to operate the Projection Monitor be sure to keep this manual handy for future reference.*

*While the official name of the product is the "PROJECTION MONITOR RECEIVER", for the sake of brevity the text refers to it as the "Projection Monitor" or 'simply' the "Monitor".*

## Contents

3 IMPORTANT NOTICE / IMPORTANT
4 PRELIMINARY INSTRUCTIONS
5 FEATURES
6 INSTALLATION
6 OPERATING PRECAUTIONS
7 INSERTING BATTERIES IN THE REMOTE CONTROL UNIT
7 REMOTE CONTROL OPERATION RANGE
8 FRONT PANEL FACILITIES
10 SYSTEM CONNECTION DIAGRAM
12 ANTENNA CONNECTIONS
12 SYSTEM REMOTE CONTROL CONNECTIONS
13 SPEAKERS
14 REMOTE CONTROL UNIT FACILITIES
24 HOW TO ALIGN COLOR CONVERGENCE
27 TV CHANNEL SELECTION
30 MULTI-CHANNEL TV SOUND (MTS)
31 HOW TO RELABEL INPUT DISPLAYS
32 TUNER PRESET
33 USING THE STATION LABEL FUNCTION
34 PICTURE AND SOUND ADJUSTMENT
35 AV MEMORY
36 DPO ADJUSTMENT
37 HOW TO TURN THE SYSTEM MODE FUNCTION ON AND OFF
38 TROUBLESHOOTING
39 CARE OF YOUR PROJECTION MONITOR
39 BLOCK DIAGRAM
40 SPECIFICATIONS

**SD - P4053 - K**

PIONEER
*The Art of Entertainment*

PROJECTION MONITOR RECEIVER

# SD-P4053

NTSC

# Operating Instructions

# IMPORTANT NOTICE

**WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO WET LOCATIONS.**

The model number and the serial number of this Projection Monitor are located on the rear panel.
Please write the serial number on the enclosed warranty card and keep it in a safe place for future reference.

*NOTE:*
*There are no user serviceable parts inside the Projection Monitor.*

# IMPORTANT

The lightning flash with arrowhead, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

**CAUTION**

**RISK OF ELECTRIC SHOCK**
**DO NOT OPEN**

CAUTION:
TO PREVENT THE RISK OF ELECTRIC SHOCK. DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

# PRELIMINARY INSTRUCTIONS

## WHERE TO PUT THE MONITOR

### LIGHTING

Bright lights or direct sunlight will dull the picture. Position the monitor so that the screen faces away from windows.

### AIR CIRCULATION

Leave space for air to circulate behind the monitor. Keep it away from curtains and other furnishings that could block ventilation.

### HEAT DAMAGE

Damage may occur if you leave the monitor in direct sunlight or near a heater.

### OPTIMUM VIEWING DISTANCE

10 to 23 feet is the range recommended for viewing comfort.

## POWER SOURCE

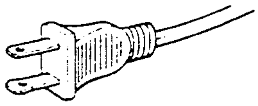
This Projection Monitor operates on AC 120 V, standard household voltage.

**NEVER CONNECT THE PROJECTION MONITOR TO OTHER THAN THE SPECIFIED VOLTAGE, OR TO DIRECT CURRENT.**

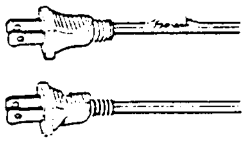
## POWER OUTLET

- This monitor requires an AC 120 volt polarized outlet. The plug will fit only one way. If it will not go in, turn it around and try the other way. If you are still unable to insert the plug, call an electrician to replace the wall socket.
- A damaged cord or plug is a fire hazard. If you notice wear or damage, have it fixed by qualified service personnel.
- Plug directly into the wall socket. Do not use extension cords or other receptacles. Do not overload the outlet: it is a fire hazard.

•POLARIZED PLUG



•DANGEROUS

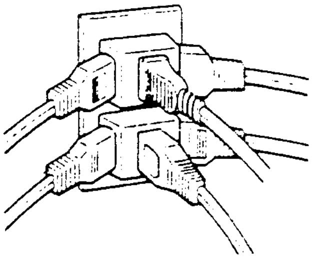


*NOTE:*

- *Never remove the back cover of the Projection Monitor as this will expose you to dangerously high voltage and other hazards. If the monitor does not operate properly, unplug it and refer to page 38.*

## POWER-CORD CAUTION

Handle the power cord by the plug. Do not pull out the plug by tugging the cord and never touch the power cord when your hands are wet as this could cause a short circuit or electric shock. Do not place the monitor, a piece of furniture, etc., on the power cord, or pinch the cord. Never make a knot in the cord or tie it with other cords. The power cords should be routed in such a way that they are not likely to be stepped on. A damaged power cord can cause a fire or give you an electrical shock. Check the power cord regularly. If you find it damaged, ask your nearest PIONEER authorized service center or your dealer for a replacement.



# FEATURES

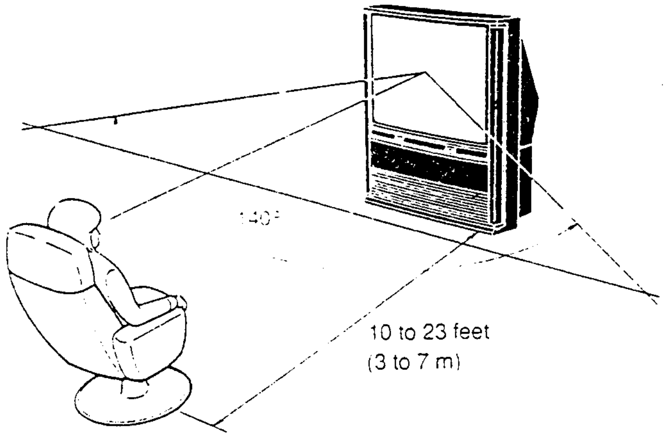
## Sharp, Clear Images with 730 line Horizontal Resolution (Video input)

- A 10 MHz video bandwidth and Dynamic Picture Control circuitry provide sharp detail and crisp outlines.
- New, high-resolution picture tubes improve focusing performance by 20%.
- Dynamic focusing circuit enhances resolution at picture edges.

## Wide Viewing Range Screen

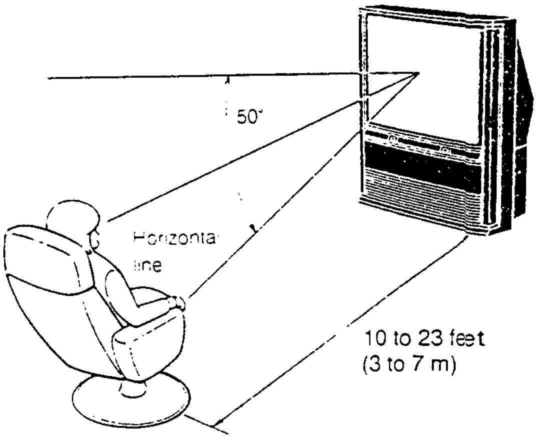
- 140° Horizontal Viewing Angle and 50° Vertical Viewing Angle.

### Best Horizontal Viewing Angle



### Best Vertical Viewing Angle

Watch from at least 10 feet (3 m) away from the screen. (Optimum viewing distance is 10 to 23 feet.)



*You may sometimes see double images or rainbowlike effects if you view from outside of the recommended area shown here.*

## Amazingly Bright Picture Intensity of 600 Foot-Lambert

- New, highly efficient lens system passes more light.
- High-power picture tubes employ advanced anode stabilization circuitry and 6000 pF capacitors.
- Newly developed phosphorescent screen for the picture tubes.

## Much Greater Contrast with Extended Gradation

- Dynamic Black Level Correction Circuit for true black reproduction under all conditions.

## Equipped with the Digital Picture-in-Picture — 1, 4 or 9 sub pictures can be displayed on the screen simultaneously

- This function lets you enjoy various display mode of sub pictures.

## Microcomputerized Dynamic Picture Optimizer (DPO)

- DPO (Dynamic Picture Optimizer) circuit detects room light and optimizes the TV picture accordingly.

## Equipped with the VNR (Video Noise Reduction) system for reducing noise on the screen while watching a TV program or prerecorded video cassette tape

- This system reduces noise on the screen, allowing you to enjoy your favorite programs with improved picture quality.

## AV Memory

- After adjusting the picture and sound quality, you can store your settings in "AV memory". Two AV memory settings can be stored and recalled.

## High fidelity color reproduction and brighter whiteness produced by a newly developed Linear White Circuit

- The linear white circuit adjusts the blue phosphor characteristics and aligns the Red, Green and Blue drive circuits. This allows the monitor to reproduce brighter whites and natural fresh colors.

## Newly designed Dynamic Sound Expansion system to reproduce a wider and more dynamic sound field with any video source including TV programs

- Dynamic theater sound effects for movies and sports programs, natural sound localization for music progams, and a monaural sound modified to produce stereo-like sound. Simultated stereo sound is included in the dynamic sound expansion system.

# INSTALLATION

## ANTENNA CONNECTION

Connect to an outdoor antenna, cable box or centralized antenna terminal (see page 12 for details).

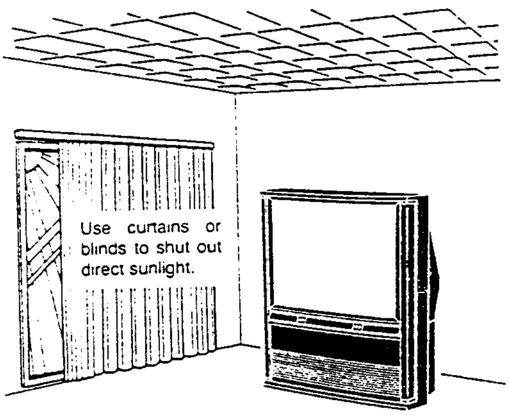
## MOUNTING

The Projection Monitor is designed to be placed on the floor or on a sturdy platform. The mounting surface should be flat and steady.

***INSTALLATION PRECAUTIONS:***
*Place of Installation*

- *When the Projection Monitor is operating, it is cooled by air-flow through ventilation holes in the rear and bottom. Therefore, avoid placing it in a location where the cooling air-flow is hindered (e.g. against a wall).*
- *Avoid places subject to extremely high temperatures or humidity, or to temperatures of 41 °F (5 °C) or lower. Also avoid dusty places.*
- *Do not set the Projection Monitor in an unstable location (such as on a shaky or tilted platform).*
- *When setting the Projection Monitor on a floor made of soft material, make sure that the floor is not damaged by the weight of the Projection Monitor.*
- *If the room temperature suddenly rises (or if the Projection Monitor is moved from a cool place to a hot place), condensation may form on the lenses, resulting in picture distortion or color fading. If this occurs, simply wait a while (with the POWER SWITCH on) and the condensation will disappear.*

Downward spot lights or fluorescent lights in an overhead "Honey-comb" prevent direct illumination of the screen.


Use curtains or blinds to shut out direct sunlight.

Cover shiny surfaces (floor and walls) with non-reflective materials. (carpet, rugs, wallpaper, etc.).

# OPERATING PRECAUTIONS

### Keep away from magnetic fields

The picture may be distorted if strong magnetic fields are nearby. External speakers should be set at least 2 feet (60 cm) away from the Projection Monitor. Electric fans and other motor driven appliances and toys may also be sources of magnetism.

### When moving the monitor

Pull out the plug and move the monitor carefully. Be particularly careful not to bump or scratch the screen. To avoid damage to the caster wheels you may need to lift the monitor when going over irregular surfaces.

### Install in a flat, steady place

Do not put the Projection Monitor on a surface that is tilted, unsteady or prone to shake or vibrate. A shaky or slanted platform is dangerous.

### Adjust room illumination

Excessively bright or dim lighting may strain your eyes. Draw the curtains if necessary to shut out direct sunlight.

### When not using the monitor for a long time

For safety, unplug the power cord when leaving the monitor turned off for a long period of time.

### Condensation and picture blurring

- You may see a blurred picture if the monitor is moved from a cool to a warm location or if room temperature rises very rapidly. This occurs when moisture from the air condenses on the optical parts.
- The picture will return to normal if you leave the monitor turned off for 1 or 2 hours, then turned on.
- A gradual change in temperature can prevent condensation from forming.

### A word about still pictures

- Do not project a still picture on your Monitor for a long period of time.
  (For example: when using your Monitor for video games, monitoring your personal computer, or while playing back videodiscs.) This can adversely affect the monitor's CRT. If this cannot be avoided, reduce the contrast of the picture in order to minimize any damage which might occur.

# INSERTING BATTERIES IN THE REMOTE CONTROL UNIT

You will find the remote control unit packed inside the projection monitor box. Open the remote control unit and insert the batteries. Follow the procedure below:

1. Open the battery compartment on the rear of the remote control unit. Press down with your thumb while sliding the lid outward.
2. Note the polarity ( + and – ) markings in the case. Insert the supplied batteries so that they match the markings.
3. Close the lid by sliding it back in until it clicks into place and press the RESET button with the tip of a ballpoint pen. The remote control unit is now ready to use.

**Battery Replacement**

If the TRANSMIT/LEARN indicator does not light when you press a key, try pressing the RESET button and reattempting your command. If the indicator still does not light, the batteries are low and should be replaced as soon as possible.

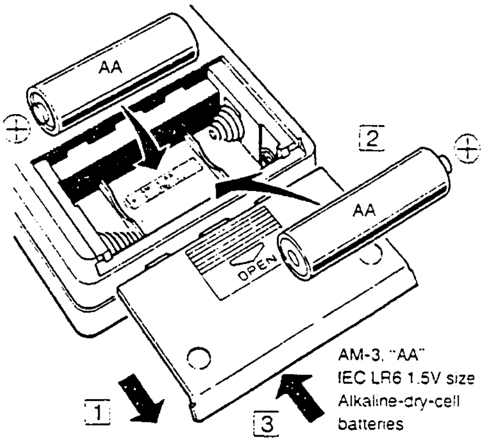
Be sure to press the RESET button after the batteries are replaced and the battery compartment cover is closed.

(Even when the RESET button is pressed, the programmed signals will not be erased.)

***NOTE:***

- *The remote control unit's power switch is connected to the battery compartment cover. The unit will not operate without the cover even if the batteries are loaded, and memory will only be retained for approximately 15 minutes (even if the batteries are loaded.)*
  *Never close the cover when the batteries are not loaded. The programmed commands will be lost within a few seconds if you do so.*

## INSERTING BATTERIES



AM-3, "AA"
IEC LR6 1.5V size
Alkaline-dry-cell
batteries

**Incorrect use of batteries may lead to leakage or rupture. Always be sure to follow these guidelines:**

A.

Always insert batteries into the battery compartment correctly matching the positive + and negative – polarities as indicated inside the compartment.

B.

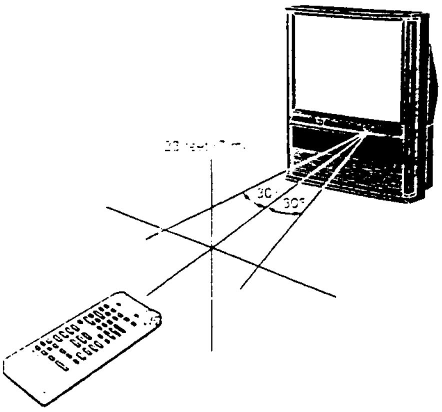
Never mix new and used batteries.

C.

Batteries of the same size may have different voltages, depending on their type. Do not mix different type of batteries.

# REMOTE CONTROL OPERATION RANGE

- Point the remote control unit toward the front of the Projection Monitor when you press any of the control keys.
- The remote control unit should be effective at distances of up to about 23 feet (7 m) from the Projection Monitor and at angles of up to about 30 degrees from a line perpendicular to the front panel.
- Furniture and other obstacles may block the infrared light beam so that it cannot reach the sensor on the Projection Monitor's front panel.
- If there is no response even when the remote control is used directly in front of the monitor, the dry cell batteries may need replacement.
- Performance of the remote control unit is adversely affected by strong fluorescent light. Keep such lights away from the sensor window in particular.



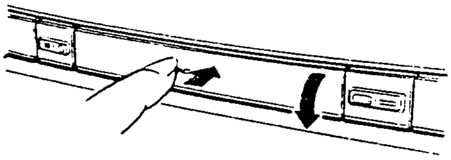
***NOTE:***

*These figures are general and do not necessarily apply to programmed commands.*

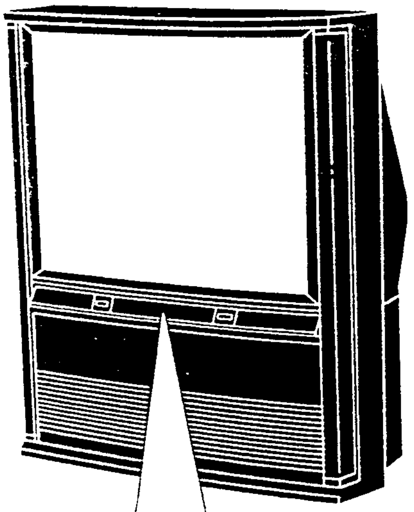
# FRONT PANEL FACILITIES

A flip-down door conceals the control panel. Push gently and release to open the door.
To close the door, lift it back up into place.

Push and release to open.

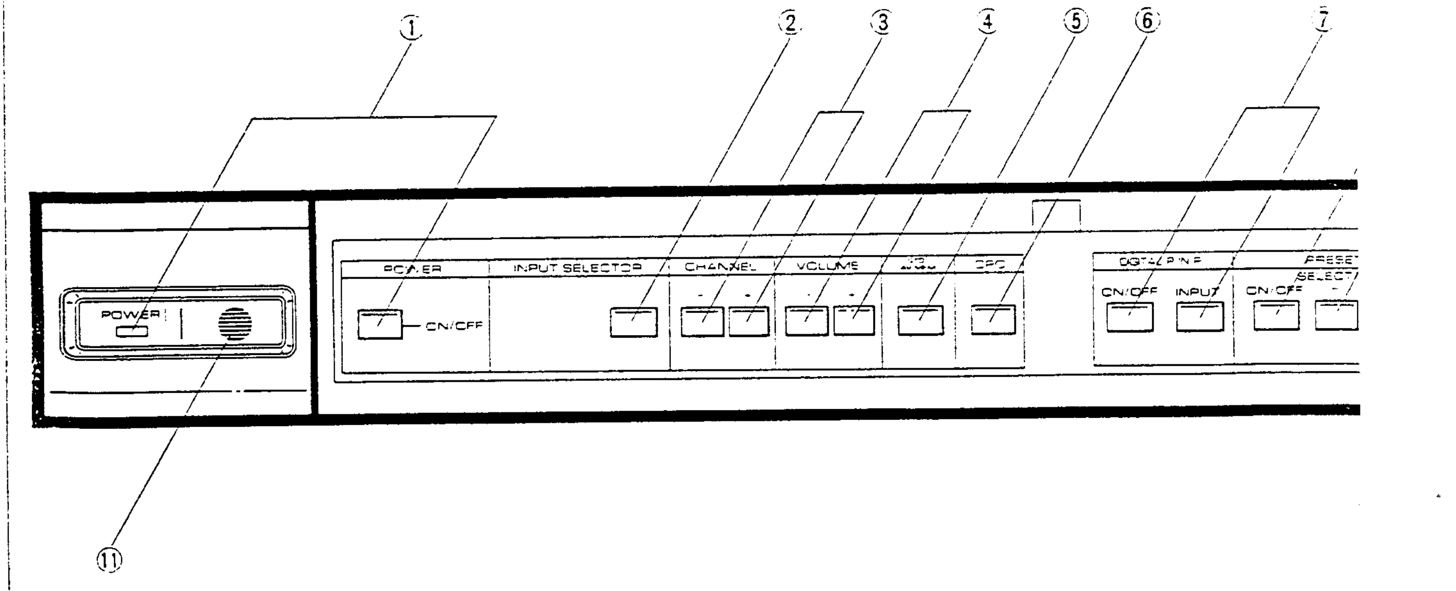


*NOTE:*
- *If you accidentally pull the door open, it may not shut properly. Push in when shutting the door to restore it to normal operation.*



## Control Panel

★ Use the remote control unit to operate most functions (see pages 14 to 23).


①
②
③
④
⑤
⑥
⑦
POWER
POWER
ON/OFF
INPUT SELECTOR
CHANNEL
- +
VOLUME
- +
DPC
DIGITAL PINP
ON/OFF
INPUT
PRESET SELECT
ON/OFF
⑪

## Attention

The Projection Monitor Receiver will not function properly in the following cases:
- Lightning storms.
- High static electricity environment.
- Poor voltage regulation in the power source.

If the Projection Monitor does not operate properly, reset it as follows.
① Unplug from the power supply for approximately 1 minute.
② Plug the power cord in again to reset it.

## FRONT PANEL FACILITIES

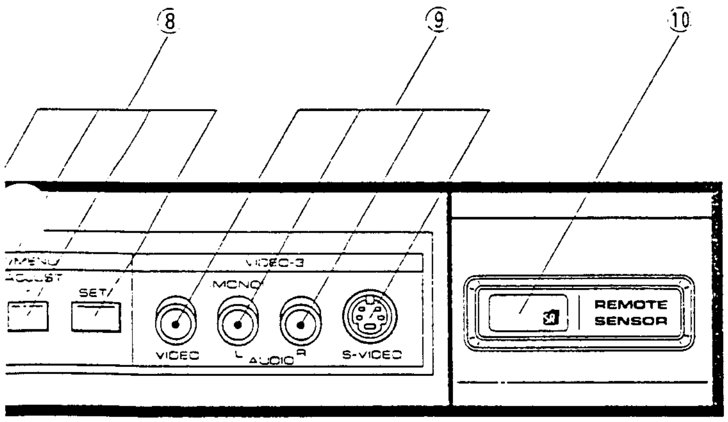
**① POWER SWITCH AND INDICATOR**
Press once to turn on the power. Press again to turn the power off. The POWER indicator lights up when the power is on. This unit is equipped with an Auto OFF circuit. 30 minutes after the input signal ceases to be supplied (for example, the TV channel being received stops broadcasting), the power automatically turns off.

**② INPUT SELECTOR BUTTON**
Press to select your program source: TV, LD player, VIDEO 1, VIDEO 2 or VIDEO 3. Each press of the button changes the selection to the next source.

**③ CHANNEL BUTTONS**
Press plus (+) or minus (−) to tune to a higher or lower channel. Only those channels in tuner preset can be tuned in by this method. For details, see page 27.

**④ VOLUME BUTTONS**
Press the plus (+) or minus (−) button to raise or lower the volume.

**⑤ STD/AV MEM (Standard/AV Memory) BUTTON**
Press to switch between the standard (STD) picture/sound settings and the AV MEMORY 1 and AV MEMORY 2 settings which have been input with the MENU SET button.



*NOTE:*
- *On rare occasions, an electrical discharge may occur inside the CRT. It makes a short, sharp pop and results in a 1 or 2 second power failure. The power will return automatically. You need not worry about the discharge. It is not a defect and will disappear with regular use. The Picture-in-Picture function will be cancelled automatically if a power failure occurs when this function is engaged.*

**⑥ DPO (Dynamic Picture Optimizer) BUTTON**
Press to turn DPO on or off as desired. When DPO is on, it automatically adjusts the picture to compensate for room illumination. For details, see page 36.

*NOTE:*
- *When the DPO button is pressed and held for more than 2 seconds, the linear white system will be turned off and "LINEAR WHITE OFF" will appear on the screen. The linear white system will resume operation approx. 4 seconds after the DPO button is released.*

**⑦ DIGITAL P IN P (Picture-in-Picture) BUTTONS**
**ON/OFF:** Press to turn the Picture-in-Picture function on and off.
**INPUT:** Press to select the sub screen program and one sub-picture mode will be selected.
- For details on the Picture-in-Picture function, refer to the remote control unit's operating instructions.

*NOTES:*
- *If only the S-VIDEO LD and VIDEO jacks of the LD player and/or VCR are connected to the Projection Monitor, the Picture-in-Picture function will not operate when these buttons are pressed.*
- *When the P IN P button is pressed and held for more than 2 seconds, The Projection Monitor will go into its demonstration mode. "P IN P DEMONSTRATION" will appear on the screen while Picture-in-Picture demonstration mode is engaged.*
- *The Picutre-in-Picture demonstration mode will be cancelled if any other operation key or operation button is pressed; and the Projection Monitor will enter the selected operation mode.*

**⑧ PRESET MENU BUTTONS**
These buttons are used to perform the following functions: color convergence, tuner presetting, TV-CATV selection, relabeling input displays, system mode setting and AV memory storage. For details, refer to the description of each function.
**ON/OFF:** Press to turn the Menu (functions above) on and off. When the button is pressed on, the function names CONVERGENCE, AV MEMORY, DPO BASE, INPUT LABEL, TV-CATV MODE, TUNER PRESET and SYSTEM MODE are displayed on the screen.
**SELECT/ADJUST (+/−):** Press to select the desired function. The selected function is displayed in red.
**SET:** Press to activate the selected function.

*NOTE:*
- *Refer to page 37, if you wish to use the SYSTEM MODE function.*

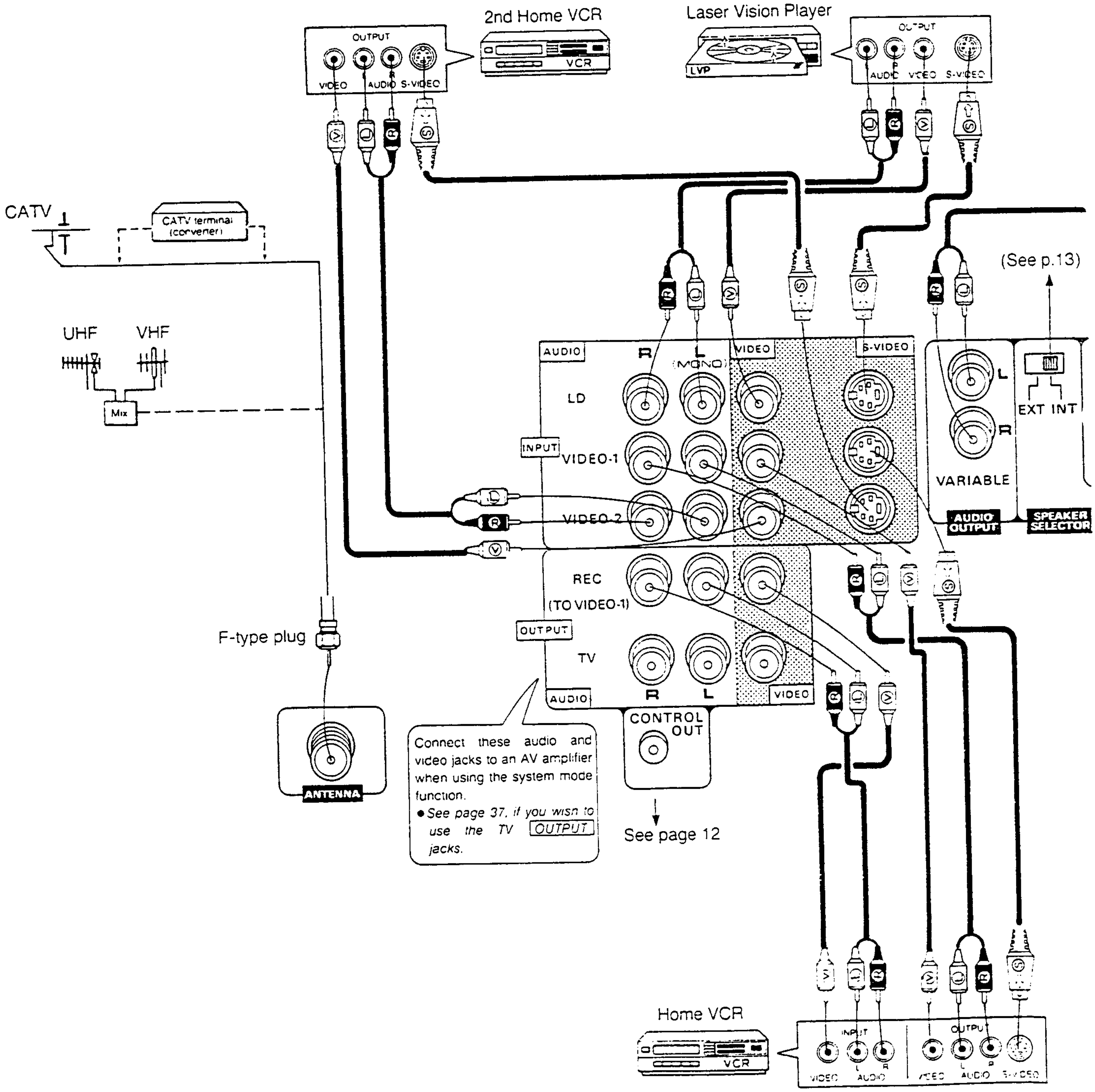
**⑨ INPUT JACKS (VIDEO-3)**
These front panel jacks are convenient for connecting portable VCR, a video camera recorder or other temporary video source to the monitor. When the audio signal of the source to be connected is monaural, connect the L (MONO) jack.
Use the S-VIDEO jack when connecting an S-VHS or ED Beta VCR, or an LD player which has an S-output jack.

**⑩ REMOTE CONTROL SENSOR**
This sensor picks up infrared signals from the remote control unit.

**⑪ DPO SENSOR**
This sensor detects ambient lighting for the DPO (Dynamic Picture Optimizer) circuit which optimizes the TV picture accordingly.

# SYSTEM CONNECTION DIAGRAM

Refer to the instructions for your VCR, LD Player and other components for details concerning connections.
Turn off all components before making connections.


2nd Home VCR
OUTPUT
VIDEO
AUDIO
S-VIDEO
VCR
Laser Vision Player
LVP
OUTPUT
AUDIO
VIDEO
S-VIDEO
CATV
CATV terminal (converter)
UHF
VHF
Mix
F-type plug
ANTENNA
AUDIO
R
L
(MONO)
VIDEO
S-VIDEO
LD
INPUT
VIDEO-1
VIDEO-2
REC
(TO VIDEO-1)
OUTPUT
TV
AUDIO
R
L
VIDEO
CONTROL OUT
L
R
VARIABLE
AUDIO OUTPUT
EXT INT
SPEAKER SELECTOR
Home VCR
INPUT
OUTPUT
VIDEO
AUDIO
L
R
S-VIDEO
VCR

(See p.13)

Connect these audio and video jacks to an AV amplifier when using the system mode function.
- *See page 37, if you wish to use the TV* OUTPUT *jacks.*

See page 12

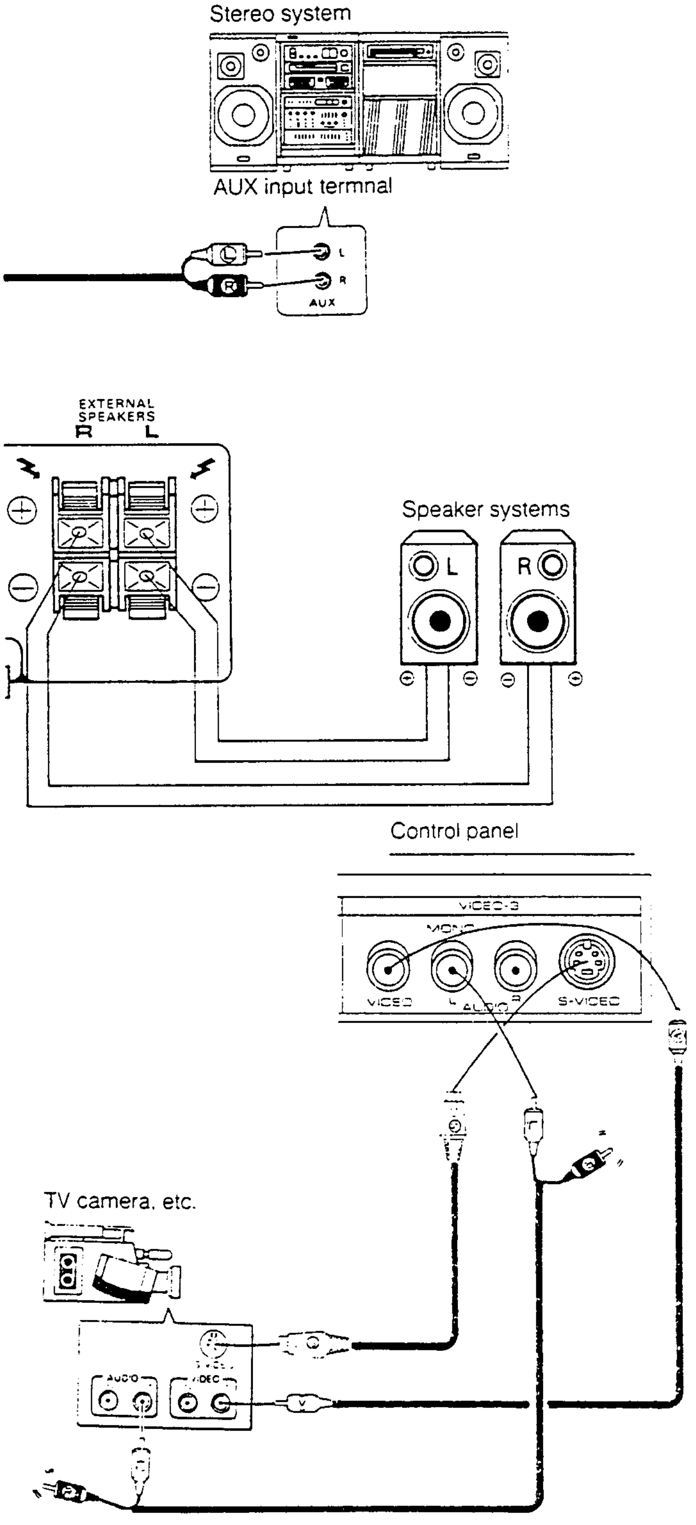
## SYSTEM CONNECTION DIAGRAM

### INPUT JACKS

These are 4 sets of inputs for VCRs, LD Players and other video sources. Use RCA-type pin plug cords (the same as those used in hi-fi systems) for connections. When the audio source to be connected is monaural, connect the source to the L-(MONO) jack.

*NOTE:*

- *These video input jacks will be cut automatically when connecting both RCA-type pin plug cords and S-VIDEO cords at the same time.*



### S-VIDEO INPUT JACKS

Use the S-VIDEO VIDEO jacks (VIDEO-1 to 3) to input S-VHS or ED Beta VCR video signals.

Use the S-VIDEO LD jack to input signals from an LD Player which has an S-output jacks.

*NOTE:*

*When making S-VIDEO connections for either a VCR or an LD Player, be sure to keep the standard VIDEO and AUDIO pin plug cords connected between the VCR/LD Player and the Projection Monitor. If only the S-VIDEO LD and VIDEO jacks are used connected, the Picture-in-Picture function cannot be used.*

### OUTPUT TO VIDEO-1 REC-JACKS

These are used for connecting the monitor to a VCR for recording, or for linking it to another monitor. These jacks output the video and audio signals of the source currently selected by the INPUT SELECTOR. Connect these output jacks to your VCR's inputs. Connect the VCR's outputs to the monitor's VIDEO-1 inputs. Connect the VCR's outputs to the monitor's VIDEO-1 inputs if you have the VCR.

***ATTENTION***

- *If a VCR is connected to the VIDEO-2 inputs, then that VCR should not be connected to these outputs. The design of some VCRs causes an oscillation feedback loop in such situations.*

### CONTROL OUT JACKS

This jack is used to extend remote control to other PIONEER equipment bearing the SR (System Remote) mark. Use mono miniplug cords (available at audio and video shops) to connect the monitor's CONTROL OUT jack to the CONTROL IN jack of the other component. The other component can be connected to still another in the same manner, from the CONTROL OUT jack of one to the CONTROL IN jack of the other. If a component has only a CONTROL IN jack then put that component last in the sequence. Otherwise, you may connect then in any order that is convenient. If another component has the SR mark and its own remote control sensor, then the CONTROL OUT/IN jack connection is not required. However, this connection may improve the response of remote control, since you will not need to point the remote control unit at different components (see page 12).

### AUDIO OUTPUT (VARIABLE) JACKS

These jacks output the audio signal from the video program material currently selected for viewing on the monitor. Connect these audio output jacks to the AUX input jacks of your stereo system. You can then use the remote control unit to adjust the volume.

***NOTE:***

- *Signals from these output jacks will be affected by AV memory, bass and treble tone adjustments using the STD/AV MEM key, SOUND key, ADJUST ◄ and ► key, as well as the dynamic sound expansion function using the D-SOUND EXPANSION key.*

### SPEAKER SELECTOR SWITCH

This switch lets you select either the built-in speakers or external speakers (see page 13).

***NOTE:***

- *Set to INT when using the built-in speakers. Do not use the INT setting if using speakers connected to the EXTERNAL SPEAKERS terminals on the rear panel. When set to INT no sound is output from the external speakers.*
- *Set to EXT when using external speakers (or if you will be directing the output through your stereo system). When set to EXT no sound is output from the internal speakers.*

### EXTERNAL SPEAKERS TERMINALS (R, L)

For connection of external speakers
(purchased separately).

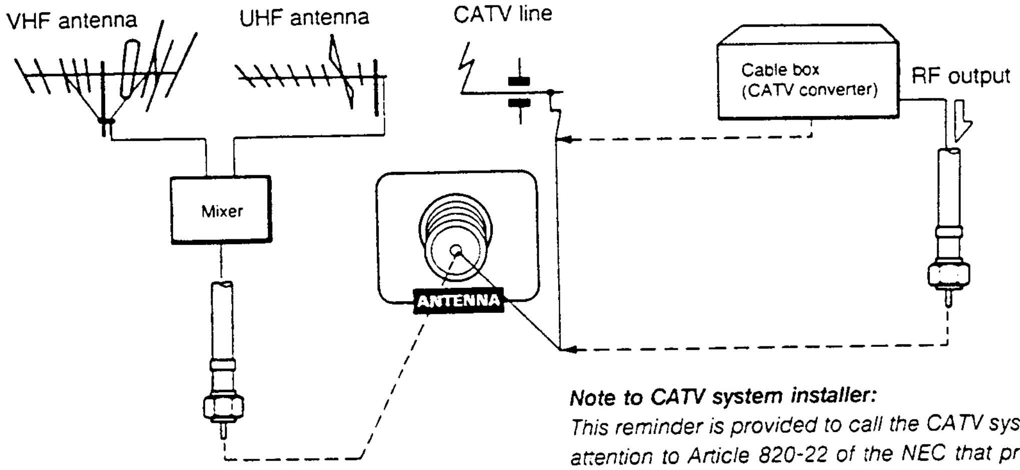
# ANTENNA CONNECTIONS

A good color picture depends on a good TV signal. So does good multi-channel (stereo and SAP) sound. To ensure the highest signal quality, choose an antenna that suits your reception area and have it properly installed. Ask your dealer for advice.
If you subscribe to cable or have a central antenna for your building, then you will not need an external antenna. However, proper connections from the TV signal source to your monitor are essential. Please refer to the instructions below.

## USING THE ANTENNA CABLE CONNECTOR

The cable connector plugs into the monitor's antenna terminal. This monitor is designed to be connected to a 75 ohm coaxial cable using an F-type plug.

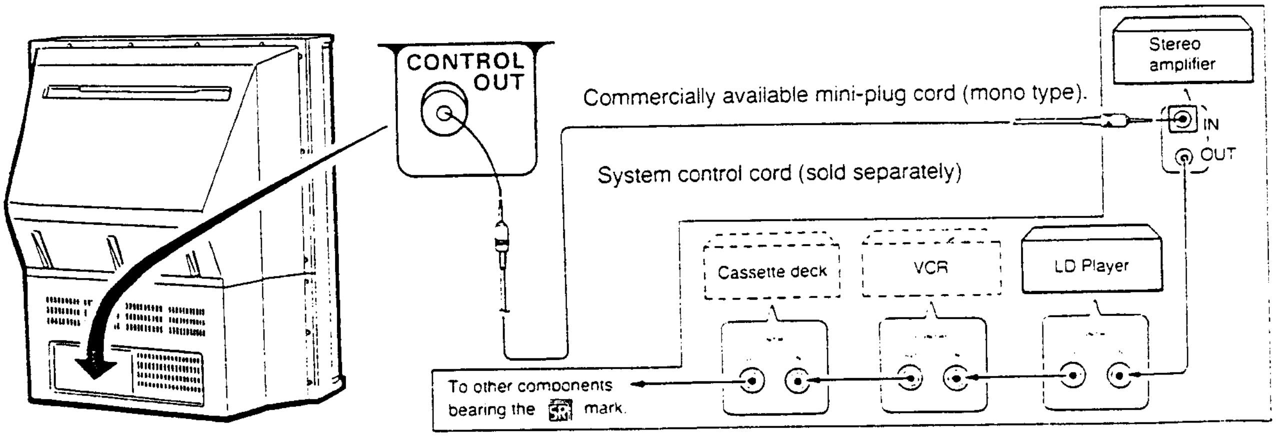
**Connect the cable box RF output cable or the antenna cable connector into the ANTENNA terminal.**


VHF antenna
UHF antenna
CATV line
Cable box
(CATV converter)
RF output
Mixer
ANTENNA

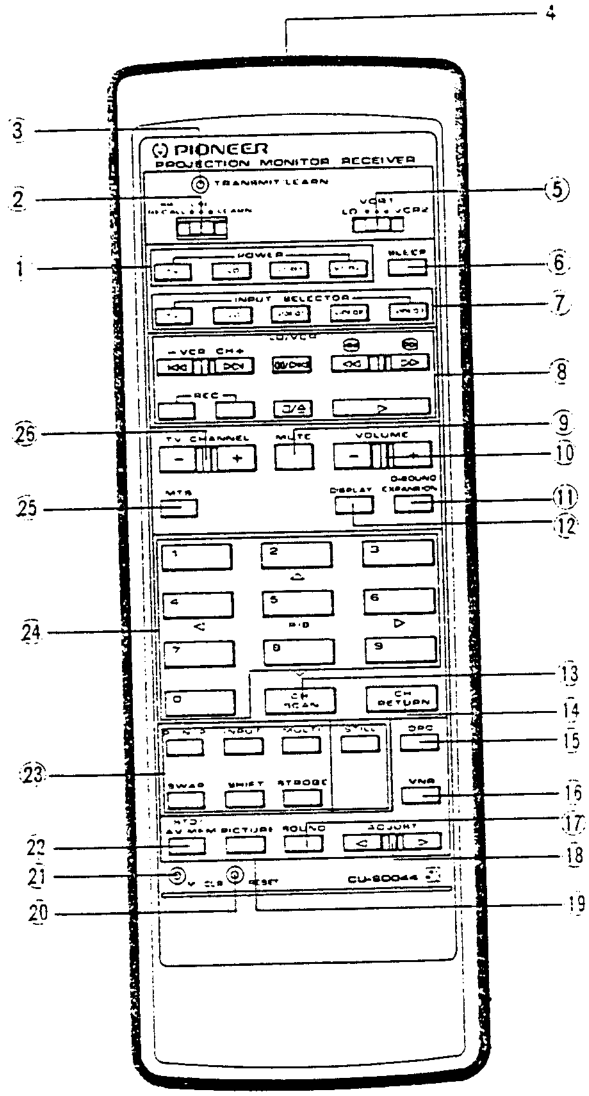
***Note to CATV system installer:***
*This reminder is provided to call the CATV system installer's attention to Article 820-22 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground should be connected to the grounding system of the building, as close to the point of cable entry as practical.*

# SYSTEM REMOTE CONTROL CONNECTIONS

Many PIONEER SR audio and video components can be connected to provide remote control for an entire audio/video system. Use mini-plug cords (monaural) which may be purchased in most audio and video stores. Connect from the CONTROL OUT jack of one component to the IN jack of the next component.


CONTROL
OUT
Commercially available mini-plug cord (mono type).
System control cord (sold separately)
Stereo amplifier
IN
OUT
Cassette deck
VCR
LD Player
To other components bearing the SR mark.

# REMOTE CONTROL UNIT FACILITIES



## ① POWER (TV/LD/VCR1/VCR2)

Turns the power of the monitor on and off. Also turns the power of LD Players and VCRs bearing the SR mark on and off.

- Store the POWER control command code from other remote control units to the VCR2 key. For details, see pages 20 and 21.

## ② LEARN MODE Switch

| | |
|---|---|
| **SR RECALL:** | Use this setting to command PIONEER equipment marked with the SR mark (No memory function). |
| **USE:** | In this mode the remote control unit is able to command other components with commands you input using the LEARN function, as well as PIONEER SR equipment. |
| **LEARN:** | This setting activates the capability of the unit to "learn" and store command codes from other remote control units. |

## ③ TRANSMIT/LEARN Indicator

Flashes when commands are being sent in the USE or SR RECALL modes of the LEARN MODE selector. In the LEARN mode, however, it:

- lights when ready to accept programming information, and
- flashes to signal that you have chosen an incorrect key to store a programmed command, or when the memory is full.

## ④ Transmitting and Remote Control Code Receiver Window

Transmits remote control signals using infrared rays. When memorizing a remote control code, the window will function as an infrared receiver.

## ⑤ TRANSMIT MODE Switch

Set to the position that corresponds to the component you wish to operate.

| | |
|---|---|
| **LD:** | To control the LD Player. |
| **VCR1:** | To send commands to VCR 1. |
| **VCR2:** | To send commands to VCR 2. |

- If you wish to use LD/VCR control keys for VCR2 remote control, store command codes from other remote control units to the LD/VCR control keys. For details, see pages 20 and 21.

## ⑥ SLEEP

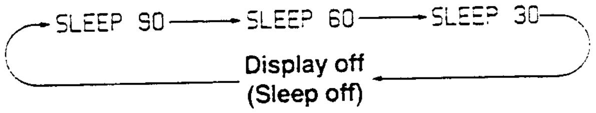
Press to set the sleep timer

The switching sequence is 90, 60, 30 (in minutes) and OFF (cancel).

The screen will confirm your setting and the projection monitor will shut down when that amount of time has elapsed.

While the timer is working, the auto-off facility will not function.

The POWER OFF display will appear on the screen approximately 1 minute before turning off the power. The POWER OFF display will flash alternately red and black until the power is turned off.



Each time the SLEEP key is pressed, the sleep time decreases in intervals of 30 minutes (90→60→30→0 (Off). When the SLEEP key is held down, the sleep time decreases in one minute intervals.

For example, to set sleep time to 40 minutes:

Press the SLEEP key once ('90' is displayed).

Press the SLEEP key again and hold it ('60' is displayed briefly, then the display decreases in 1 minute intervals: 59,58,57.... etc.).

Release the SLEEP key when the display reads '40'.

## ⑦ INPUT SELECTOR (TV/LD/VIDEO 1/VIDEO 2/VIDEO 3)

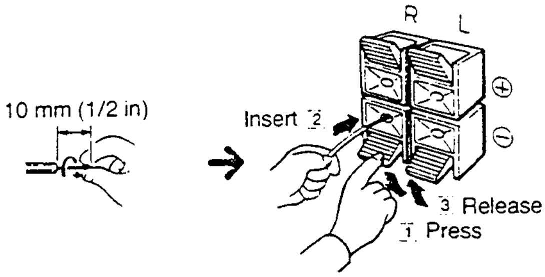
Press the key to select the source you wish to watch. The screen will display your selection.

## ⑧ LD/VCR Control Keys

If your LD Player or VCR (Video Cassette Recorder) is a PIONEER model bearing the SR mark, you can control the component using these keys. For details, see page 23.

# SPEAKERS

## CONNECTING EXTERNAL SPEAKER WIRES



Strip each wire so that about half an inch is exposed. Twist the core.

Turn off the power of the monitor and connected equipment.
Press the lever, insert the wire, and release the lever to lock the wire into place. Pull gently on the wire to check that it is securely connected.

Do this for each wire. Be careful to connect the right speaker's plus and minus terminal wires to the "R" "+" and "−" terminals. Likewise, connect the left speaker's plus and minus terminal wires to the "L" "+" and "−" terminals.

### Precautions

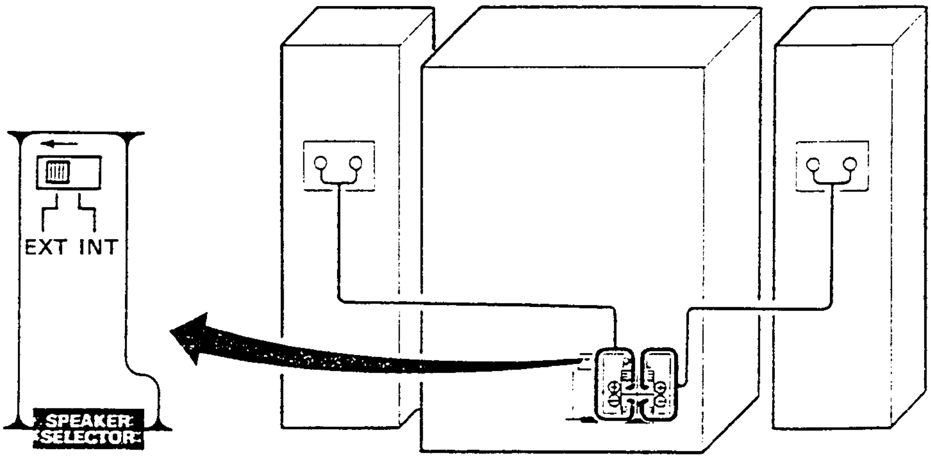
- Make sure that exposed wires do not protrude and touch each other.
- If you do not hear a normal stereo image when listening to a stereo program, it may be because the "+" and "−" connections are reversed for one of the external speakers.
- Make sure that the right speaker is connected to the "R" terminals and the left speaker to the "L" terminals. Make sure that each speaker's two wires are properly connected to the appropriate "+" and "−" terminals.

*NOTES:*

- *Use speakers with an impedance rating ranging from 8 ohms to 16 ohms.*
- *Ordinary speakers are not magnetically shielded and may disturb the picture if placed too close to the monitor. If you notice a problem, move the speakers about 2 feet (60 cm) away from the monitor.*

## SPEAKER SELECTOR SWITCH

Set this switch to the INT position if you will be listening to the built-in speakers. If you have connected external speakers (or if you will be listening through your stereo system), then you can turn off the built-in speakers by setting the selector to the EXT position.

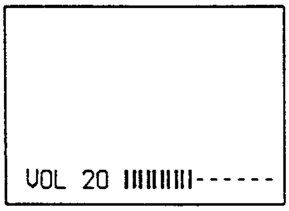


## REMOTE CONTROL UNIT FACILITIES

### ⑨ MUTE

Press to temporarily turn off the sound. Press again to return to the previous volume level. This is useful, for example, when answering telephone.

The volume display will turn red while the mute function is engaged. If the mute function is left on for over approx 10 minutes, the function will be cancelled automatically, and the volume level will be reset to 0. The volume display will disappear from the screen when the mute function is cancelled.

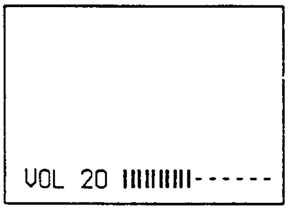


### ⑩ VOLUME +, −

Press the + key to increase the volume, and the − key to decrease it. Volume adjustment will appear on the screen as numbers and a bargraph. '63' indicates the maximum volume level.

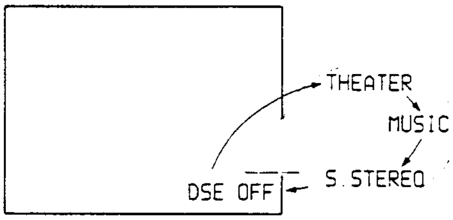
The display will disappear from the screen after 4 seconds.

- Volume display will change color automatically according to the selected input mode.



### ⑪ D-SOUND EXPANSION (Dynamic Sound Expansion)

Press once to display the current channel and/or other information on the screen approx. 4 seconds.



### ⑫ DISPLAY

Press once to display the current channel and/or other information on the screen.

### ⑬ CH SCAN (Channel scan)

Press to display 4 (or 9) memorized TV stations on the split screen at the same time. After pressing the CH SCAN key, use the MULTI key to select 4 station display mode or 9 station display mode.

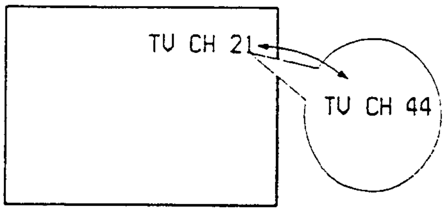
**Channel Scan Features**

When 4 screen or 9 screeen mode is selected, use this feature to select one of the television stations curretly displayed for full - screen viewing.

Press the Channel call 10-key that correspond to the channel that you wish to watch.

### ⑭ CH RETURN (Channel return)

Press to switch between the current channel and the channel you were watching immediately before. This is useful, for example, if you wish to switch back and forth between two sporting events.

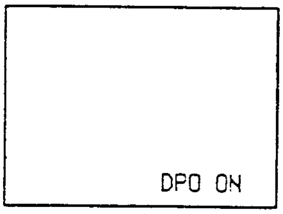


### ⑮ DPO (Dynamic Picture Optimizer)

You can turn DPO on or off as desired. When DPO is on, it automatically adjusts the picture to compensate for room illumination. For details, see page 36..

***NOTE:***

- *When the DPO button is pressed and held for more than 2 seconds, the linear white system will be turned off and "LINEAR WHITE OFF" will appear on the screen. The linear white system will resume operation approx. 4 seconds after the DPO button is released.*

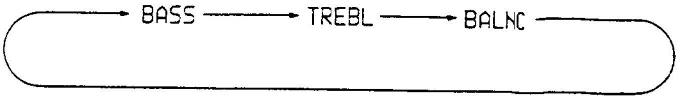


### ⑯ VNR (Video Noise Reduction)

You can turn VNR on or off as desired. When VNR is on, the noise on the screen is reduced. For details, see page 17.

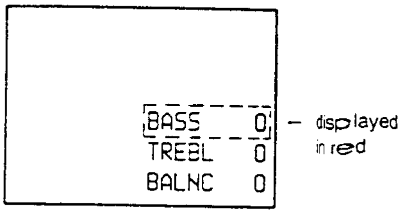
### ⑰ SOUND

Press to select the sound parameter to be adjusted.



### ⑱ ADJUST

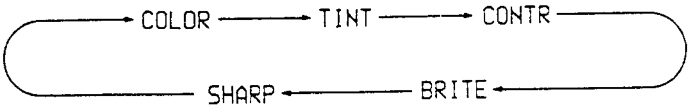
Press the ⊳ key to increase the value of the item currently selected using the PICTURE key or SOUND key, and the ⊲ key to decrease it.



example: SOUND ADJUST display

### ⑲ PICTURE

Press to select the picture parameter to be adjusted.



### ⑳ RESET Button

Press to reset the microcomputer in the remote control unit to its initial mode in the following cases:

- When replacing the batteries.
- If the remote control unit will not function properly when the operation key is pressed, etc.

***NOTE:***

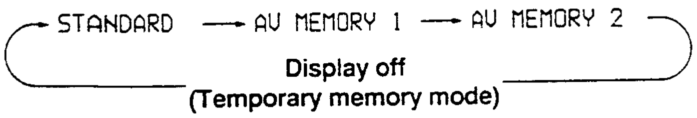
*On rare occasions, an electrical discharge may occur inside the unit, causing some command malfunction. If this happens pressing RESET should correct the problem. The possibility exists, however, that instead of correcting the problem, pressing RESET may erase the programmed memory.*

### ㉑ M. CLR Button

Erases all commands programmed through the LEARN function: press lightly with the tip of a ballpoint pen or other fine-tipped instrument during learn mode to activate this function. For details, see page 22.

### ㉒ STD/AV MEM (Standard/AV Memory)

Press to switch between the standard (STD) picture/sound quality settings and your AV MEMORY 1 and AV MEMORY 2 setting.
This key only recalls settings stored in AV MEMORY. To put the current picture/sound settings into AV MEMORY, use the control panel's PRESET MENU buttons. For details, see pages 34 and 35.



### ㉓ Picture-in-Picture Control Keys

Any program source connected to the Projection Monitor can be displayed on the screen simultaneously with any other source. Also, the multiscreen mode (4 sub screen or 9 sub screen) can be selected.

**P IN P:** Press to turn the Picture-in-Picture function on and off.

**INPUT:** Press to select the input source for the sub-picture when one sub-picture mode will be selected.

**MULTI:** Press to select the number of sub-pictures which appear on the screen (1, 4 or 9).

**SWAP:** When only one sub-picture is displayed, press to exchange the position of the main picture and sub-picture.

**SHIFT:** Press to move the sub-picture to a different place on the screen.

**STROBE:** Press to select the strobe feature. Be sure to select the multiscreen mode (4 sub screen or 9 sub screen) using the MULTI key.

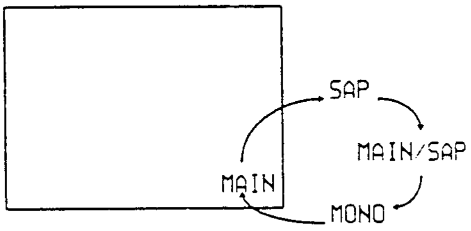
**STILL:** Press to select still screen or normal mode.

### ㉔ Direct Channel Selection/Color Convergence Pad

Press the key (or keys) that correspond to the channel that you wish to watch, to switch directly to that channel from any other channel.
The [2], [4], [5], [6] and [8] keys are also used for color convergence operation. For details, see page 24.

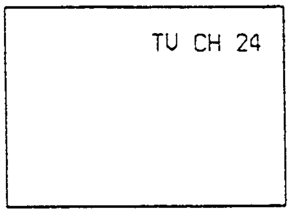
### ㉕ MTS (Multi-channel TV Sound)

Press to select the reception mode for mutli-channel TV sound (MTS).
The switching sequence is as follows.



### ㉖ TV CHANNEL −, +

Press the left (−) or right (+) side of this key to scan up or down among the channels in tuner preset.



## Dynamic sound expansion effects

This monitor is equipped with the newly designed Dynamic Sound Expansion system to reproduce a wider and more dynamic sound field for any video source including TV programs. A monaural sound track can also be modified to produce stereo-like sound. Simulated stereo sound is included in the dynamic-sound expansion system.

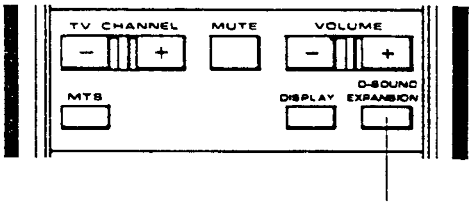
**Press the D-SOUND EXPANSION key repeatedly to select the mode of dynamic sound expansion as follows:**

| | |
|---|---|
| **THEATER:** | Set to this mode while watching movies or sports programs. |
| **MUSIC:** | Set to this mode while watching music programs. |
| **S. STEREO (Simulated Stereo):** | Set to this mode while watching monaural sound programs. |

**When you wish change from monaural sound to a simulated stereo sound with the dynamic-sound expansion system:**

Press the D-SOUND EXPANSION key repeatedly until S. STEREO is displayed on the screen.

* After the monaural program is finished, it is recommended you turn the dynamic-sound expansion system off or set the monitor to THEATER or MUSIC.



D-SOUND EXPANSION key

***NOTES:***

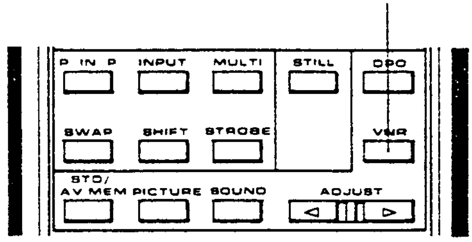
- *The selected mode will appear on the screen for 4 seconds.*
- *The dynamic-sound expansion system effect is performed by both the internal speakers and external speakers which are connected to the EXT SPEAKERS terminals.*
- *Only the signals from the AUDIO OUTPUT (VARIABLE) jacks will be altered when the dynamic-sound expansion system is engaged.*
  *The original output signal is sent through the other OUTPUT REC jacks.*

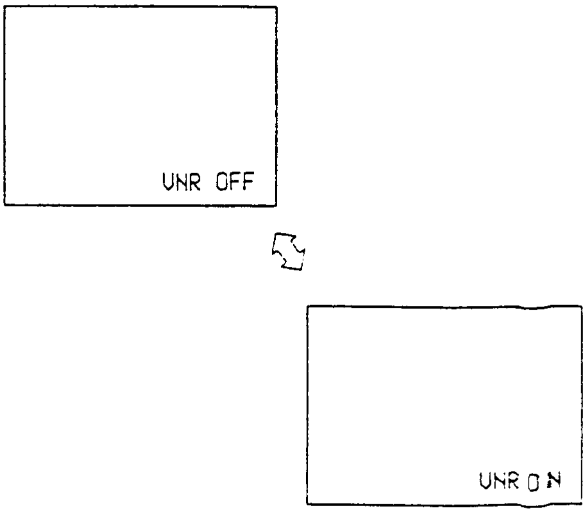
## VNR (Video Noise Reduction) system operation

### To improve picture quality with VNR while watching a TV program or prerecorded video cassette tape playback

VNR system will reduce the noise contained in the video signal and improve the picture quality of TV programs or video tape playback pictures.
Press the button once to display the VNR mode (VNR ON or VNR OFF) on the screen, then press the button once or twice to select either VNR ON or VNR OFF.

VNR key





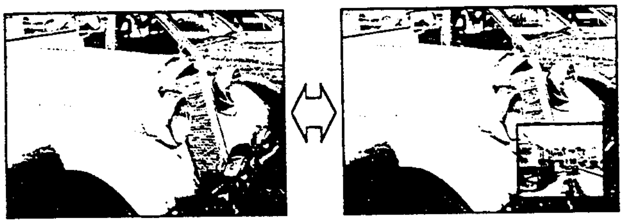
## REMOTE CONTROL UNIT FACILITIES

### Picture-in-Picture functions

Any one of the three sources connected to the Projection Monitor can be displayed simultaneously on a small area of the screen, while one of the other sources is being watched on the main screen.

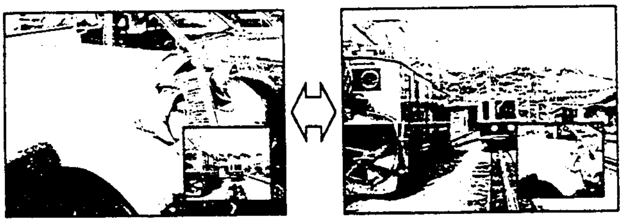
**To turn the Picture-in-Picture function on and off**

Press the P IN P key repeatedly to turn the sub-picture on and off.



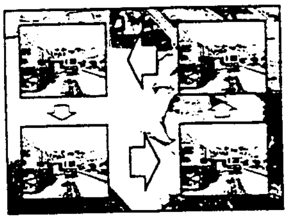
**To replace the main screen picture with the sub-picture**

Press the SWAP key. Each time this key is pressed, the main screen and the sub-picture will switch positions.



**To change the position of the sub-picture**

Press the SHIFT key repeatedly. Each time this key is pressed, the sub-picture will move (counterclockwise) to a different corner of the main screen.

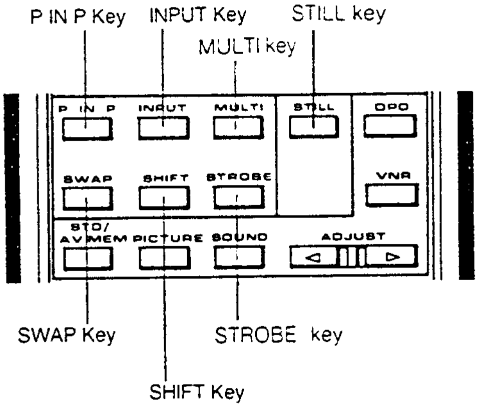


**To select the input source of the sub-picture while watching the main screen**

Press the TV, LD, VIDEO 1, VIDEO 2 or VIDEO 3 INPUT SELECTOR key. When the INPUT key on the remote control unit is pressed, the selected video source for the sub-picture will be displayed (ie, video disc playback, TV program or video cassette tape playback).

**Sub-picture input display**

When using the picture-in-picture function, press the INPUT key to display the sub-picture input source above (or below) the sub-picture. Press the DISPLAY key to display the input source of the main picture in the upper right hand corner of the screen. Sub-picture mode will appear in the lower left corner of the screen.



**To watch a still picture onthe main screen**

Press the STILL key to freeze the picture. The sound track will continue to play back normally, but the picture will freeze.

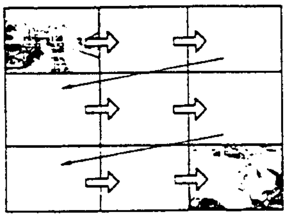
**To cancel still or picture-in-picture function**

Press the STILL key again. The screen will be reset to normal mode. Alternatively, press the P IN P key to cancel the picture-in-picture function.

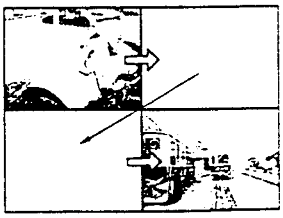
### Picture-in-Picture function using the Multi-screen feature

The multi-screen feature can select 4 subscreen mode or 9 subscreen mode, and the strobe or manual factures.

1. Press the P IN P key to turn the picture-in-picture function on.
2. Press the MULTI key repeatedly to select 1, 4 or 9 scren. When selecting 4 subscreen or 9 subscreen mode, the main screen will disappear and 4 or 9 subscreen will appear on the screen. The lower right hand corner of the screen plays back normally. If the 1 screen mode is selected, the mian screen will reappear.
3. Press the STROBE or SHIFT key. When the STROBE key is pressed, the picture will be displayed at specific intervals. At each interval, a still picture appears in one of the 4 (or 9) screens. The final screen picture plays back normally. Press the SHIFT key repeatedly if you wish to change the active subscreen's position. The subscreen selected most recently will play back normally.
4. To cancel the multi-picture feature: Press the MULTI key. The main and sub-screen will reappear. Alternatively, press the P IN P key to cancel the picutre-in-picture function.



9 screen mode



4 screen mode

## REMOTE CONTROL UNIT FACILITIES

### To display the picture of several television stations using the channel scan feature

The channel scan feature can display 4 or 9 television station pictures at the same time. The stations which have been memorized in the TV tuner will be displayed on the split screen.
All the displayed pictures will appear as still images when the channel scan feature is engaged.

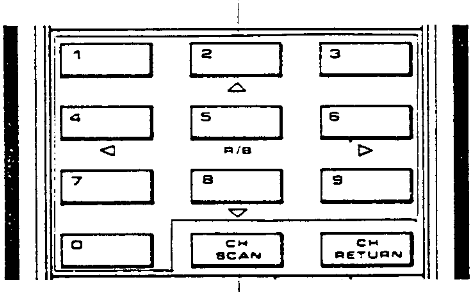
1. Press the TV INPUT SELECTOR key or press the INPUT SELECTOR button repeatedly until a TV program appears.
2. Press the CH SCAN key to display the first 4 stations on the screen. The memorized TV stations will appear in order from the top left corner to bottom right corner of the screen.
3. Press the MULTI key repeatedly to select 4- or 9-screen mode. The selected TV station will appear in the sub-screen in the upper left corner of the screen.
4. To display the next group of memorized TV stations:
   Press the CH SCAN key again.
   Press the CH SCAN key repeatedly to select the memorized stations you wish to watch.
5. To cancel the channel scan feature:
   Press the P IN P key again.

**If you wish to select a station when the channel scan feature is engaged.**

Press the direct channel selection pad you wish to select.

• Press the DISPLAY key to reappear channel numbers on the screen.

Direct channel selection pad



CH SCAN key

*Attention*

*Do not use the Picture-in-Picture function for more than 2 hours. It may damage the picture tubes inside the Projection Monitor. If you wish to this function for more than 2 hours, change the sub-picture position on the screen every once in a while by pressing the SHIFT key.*

*NOTES:*

- *If only the S-VIDEO LD and VIDEO jacks are used to connect the LD palyer and VCR to the Projection Monitor, the Picture-in-Picture function will not operate when these buttons and keys are pressed.*
- *The sound of the sub-picture(s) cannot be heard when the Picture-in-Picture system is engaged.*
- *When a copy-protected tape is played back in the mian screen, the sub-picture may be distorted.*
- *With some VCRs, the screen may fluctuate, when the VCR is not in playback mode. This is not a malfunction.*
- *TV channels can be selected with the TV CHANNEL +/− key or the direct channel selection pad when the TV key of the INPUT SELECTOR is pressed. Both the main screen and the subpicture will change TV channels at the same time when TV channels are selected.*
- *Signals output from the Projection Monitor will not be altered when the Picture-in-Picture function is engaged. Only the main picture signal is sent through the monitor output jacks.*
- *The picture-in-picture function will be cancelled automatically if none of the picture-in-picture control keys or CH SCAN key are pressed for more than 8 minutes when still mode, multi-mode or channel scan mode is engaged.*
- *If the input signal (including burst signal) is not supplied to the main screen, the picture-in-picture function will not function properly.*
- *During still playback, special effect playback, or when searching an LD or video cassette tape visually forward or backward usig the main screen, shaking may occur in the sub-picture.*
- *After the multi-screen feature is engaged, input to the sub-screen cannot be changed by pressing the INPUT key. If you wish to change the input, press the MULTI key to cancel the multi-screen mode or select one sub-picture mode, and select the desired input source of main. Then select the multi-screen feature again.*
- *Sub-picture mode only appear if the main screen signal is not supplied on the monitor when turn the picture-in-picture function on. Pictures will appear on both the main screen and sub-picture when the main screen signal is supplied.*
- *If any TV program is received or TV program is tuned in clearly, black and white picture will appear in the sub-picture when the CH SCAN key is pressed. If this happens, select a TV program tuned in clearly, then press the CH SCAN key.*
- *Channel scan feature can display only memorized TV stations which can be tuned using the TV tuner of the monitor. If the RF terminal of the CATV converter is connected to the monitor, channel scan feature can display CATV converter selected station only, not all the stations memorized in the CATV converter.*

## Programmable remote control functions

This remote control unit can "learn" the commands of other remote control units, regardless of their manufacturer, as long as the other unit is of the infrared type. In some cases you may still need the original remote control unit, but you will be able to use this unit for most of your video as well as audio system control needs.

***NOTE:***

*It is advisable to program the unit in a room separate from the system with which it is to be used. This will prevent problems such as sudden high-volume output or accidental tape erasure that may occur if command signals reach your components during programming. Or, you may wish to unplug your component system and conduct programming in the same room. Simply turning off the power may not be sufficient since power on/off switching may also be remote controllable. Also do not throw away the original remote control units after programming. You might need the original ones in the future.*

This remote control unit contains preprogrammed commands compatible with PIONEER equipment. If your home audio/video center consists exclusively of PIONEER components, you can use the unit without any additional programming. It is also possible to return to the original PIONEER commands after assiging other commands. (Refer to "Returning to the Initial Settings" for details.)

## Which keys can be programmed with new commands?

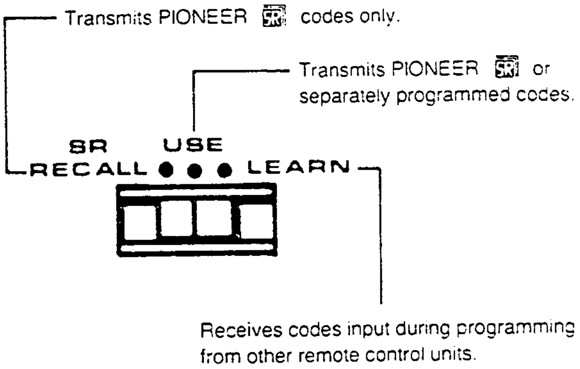
Setting the LEARN MODE switch to the LEARN position allows the unit to memorize codes. Once programmed, these new commands can be transmitted only when the LEARN MODE switch is in the USE position. The SR RECALL setting will only allow transmission of the initialized PIONEER SR codes.

For LD/VCR controls in area Ⓐ, the keys can be programmed with a different command from another remote for each TRANSMIT MODE. In other words, each key can have up to three different functions, differentiated by the setting of the TRANSMIT MODE.

For POWER and other TV controls in area Ⓑ, each key can be programmed with only a single command, regardless of the TRANSMIT MODE setting.

## Other Important Notes

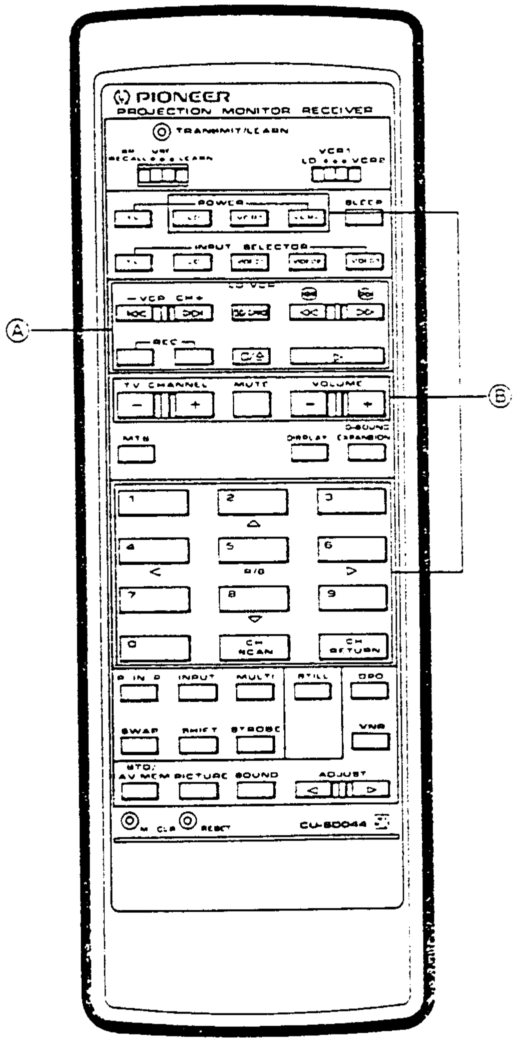
- A total of 44 other codes can be memorized using these keys. (This may vary depending on the command format of the codes to be memorized.)
- There are 2 keys on the unit for recording, to help prevent misoperation. To start recording, or to memorize a command code with the REC keys, both of them must be pressed at the same time.
- When the batteries run down, all functions will stop automatically. If the indicators no longer light or flash, or components do not respond to signals from the unit, the batteries need to be replaced. (Always use alkaline cells.)
- When programming keys, make sure that both units are loaded with fresh batteries.
- Programming may be impossible from some types of infrared remote control units.



Transmits PIONEER SR codes only.

Transmits PIONEER SR or separately programmed codes.

Receives codes input during programming from other remote control units.



## How to program the remote control buttons

1. **Set the LEAN MODE switch to LEARN.**
2. **Place the other remote control unit and the programmable remote control unit on a table facing each other, separated by a distance of 2 to 4 inches (5 to 10 cm).** Programming will not be possible if the units are too close to each other.
3. **Press the key on the programmable remote control unit that yoy wish to program until the TRANSMIT/LEARN indicator lights up.**
4. **Press a key on the other remote control unit until the TRANSMIT/LEARN indicator goes off.**
5. **To program other keys, repeat steps 3 and 4.**
6. **When finished, set the LEARN MODE switch back to the USE position.**
7. **Point the programmable remote control unit toward the corresponding component and check operation by pressing the keys you just finished programming.** If the component does not work as expected, repeat steps 1 to 7. Try changing the distance between the remote control units in step 2.

*NOTE:*

- *When programming, make sure that function indicators (e.g., ►, ►►, ■) are programmed from the original remote control unit into the matching keys of the programmable unit; this will greatly facilitate operation.*
- *Do not press the keys excessively while performing programming operations.*
- *The TRANSMIT MODE switch will shut off automatically while performing programming operations.*
- *If the LEARN indicator flashes, it indicates either that you are tyring to store a command with a key incapable of being used with the LEARN function or that the remote control unit's programming capacity has been exceeded. In the latter case, the function last programmed will not be stored carrectly. All previously programmed functions, however, will be retained in the memory and may be used as they are if the last function is not essential. For re-programming information, refer to "Returning to the Initial Settings."*

*1. If programming is not carried out successfully:*

- *Position the remote control units at a greater distance from each other.*
- *Position the remote control units slightly out of line with each other.*

*2 If the remote control unit is directly subjected to strong fluorescent light, programming may not be possible.*

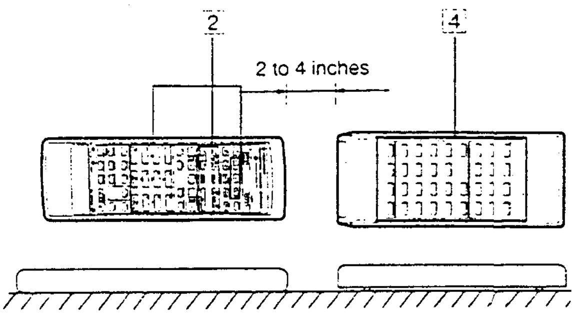
*3. If remote control operation is not successful although programming was successful:*

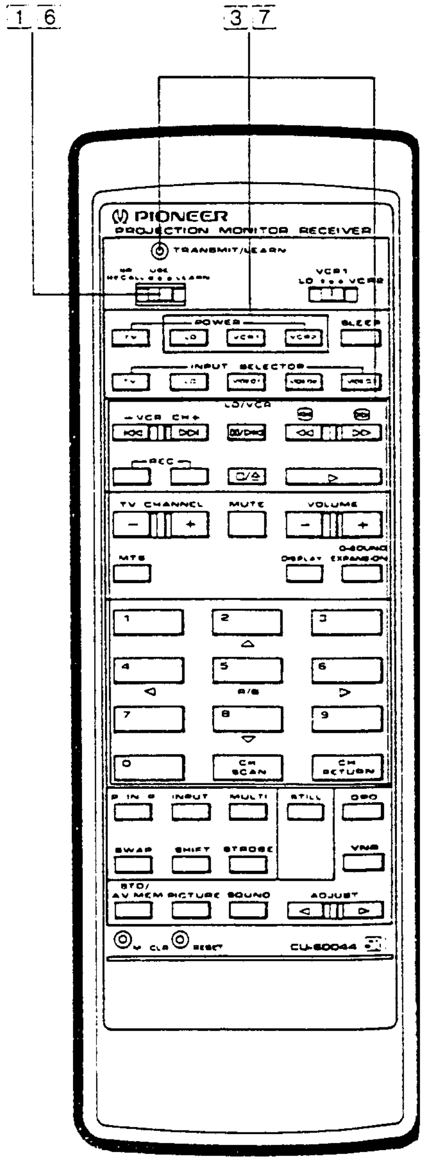
- *Press the RESET button. (The programmed signals will not be erased.)*
  *If the problem still cannot be corrected, press the M. CLR button and try programming again.*
- *After programming is completed, set the LEARN MODE switch to the USE position.*

## How to use the remote control buttons

① Set the LEARN MODE switch back to the USE position.

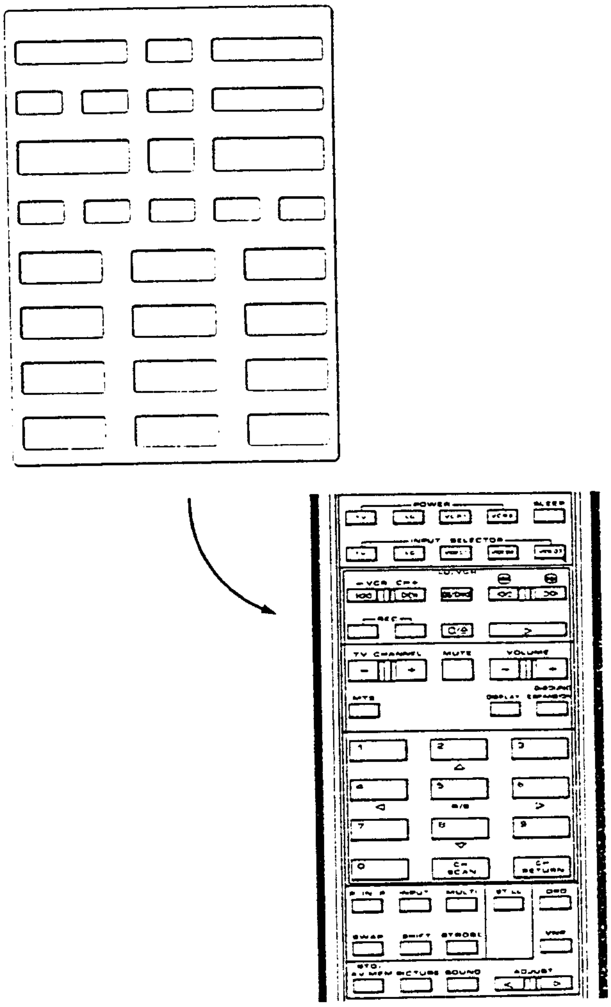
② Point the programmable remote control unit toward the corresponding component and check operation by pressing the keys you just finished presetting.





## Overlay

An overlay sheet is provided, on which you can write the functions of keys you have programmed from other remote control units. It fits over the unit keyboard for your own personal reference.



## Questions and Answers on Programming Commands

**Q:** The remote control unit for my VCR has two REC keys, which both have to be programmed at the same time to start recording. How should I program this into my programmable remote control unit?

**A:** Press and hold both REC keys on the programmable remote control until the TRANSMIT/LEARN indicator lights up, and then press the two keys on the VCR remote control simultaneously.

**Q:** The remote control unit of my VCR has a REC key and a PLAY key, and they both have to be pressed at the same time to start recording. How should I program this into my programmable remote control unit?

**A:** Press and hold both REC keys on the programmable remote control until the TRANSMIT/LEARN indicator lights up, and then press the REC and PLAY keys on the VCR remote control simultaneously.

***NOTE:***

*If both keys are not pressed simultaneously in the above mentioned operations, the commands will not be memorized.*

## Battery Replacement

Replace the batteries as soon as possible if pressing the control keys does not cause the TRANSMIT/LEARN indicator to light even after the RESET button has been pressed.
Be sure to always use the specified batteries (LR6/AM3 alkaline batteries).

***NOTE:***

*The unit's power switch is connected to the battery compartment cover. Therefore:*

- *The unit will not operate when the cover is off even if batteries are loaded.*
- *If the cover is replaced when batteries are not loaded the memory will be lost after a few seconds.*
- *With batteries loaded and the cover off, memory is retained for about 15 minutes.*
- *Be very careful not to lose the battery compartment cover.*

## Returning to the Initial Settings

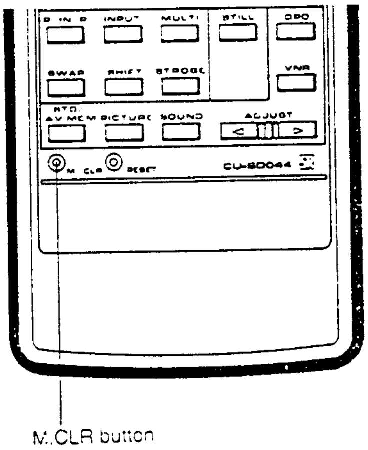
Follow the instructions below to return all settings to the PIONEER Remote Control Code Settings.

① Set the LEARN MODE selector to the LEARN position.

② Press any programmable key. (The TRANSMIT/LEARN indicator will light.)

③ Using a ball-point pen or similar object, press and hold the M.CLR button down untill the indicator flashes and then goes out.

All commands you programmed will be erased, and the unit will be reset to use codes initially set by PIONEER.



## Control keys for a PIONEER LD Player and VCR bearing the SR mark

If your LD Player or VCR is a PIONEER model bearing the SR marking, your remote control unit can perform most basic operations without remote control code programming.

The TRANSMIT MODE switch is used to select whether the programmable remote control unit operation keys will function as LD or VCR control keys.

### LD Player Control

① **Set the LEARN MODE switch to SR RECALL.**
After presetting the remote control codes of the programmable remote control unit, set the switch to SR RECALL.

② **Set the TRANSMIT MODE switch to LD.**

③ **Press the LD POWER key to turn the power on.**
Then press the LD INPUT SELECTOR key to set the input selector of the monitor to LD.

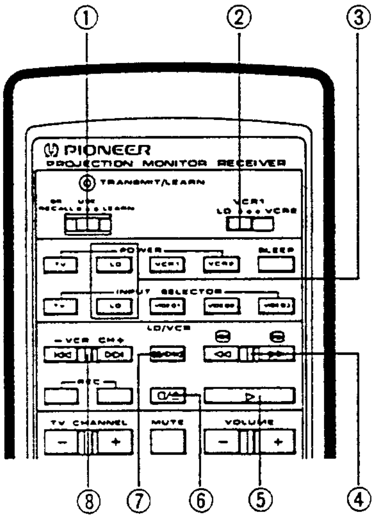
④ **Scan (◄◄/►►) key**
Press the ►► side of the key to search in the forward direction while playing back the videodisc.
Press the ◄◄ side of the key to search in the reverse direction while playing back the videodisc.

⑤ **Play (►) key**
Press to begin playback.

⑥ **Stop/Eject (■/⏏) key**
Press once to stop playback, twice to eject the disc.

⑦ **Pause/Still (❚❚/►|◄) key**
Press to interrupt videodisc playback temporarily. Press the button again to resume playback.

⑧ **Chapter Skip Key (◄◄/►►)**
Press the ►►| side of the key to skip directly to begining of the next chapter, press the |◄◄ side to skip directly back to the beginning of the chapter currently in play. This operation can only be performed on an LD Player with chapter skip function.



### VCR Control

① **Set the LEARN MODE switch to SR RECALL.**
After presetting the remote control codes of the programmable remote control unit, set the switch to SR RECALL.

② **Set the TRANSMIT MODE switch to VCR1.**

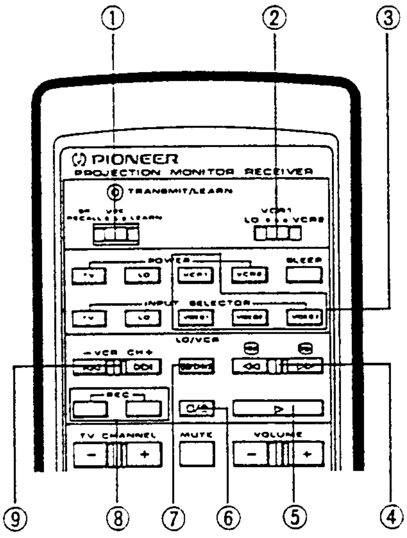
③ **Press the VCR1 POWER key**
To turn the power on. Then press the VIDEO INPUT SELECTOR key to set the input selector of the monitor to VIDEO.

④ **Rewind/Fast Forward (◄◄/►►) key**
This key allows high-speed movement through parts of the tape that you don't wish to watch. Press the left side of the key to rewind the tape, and the right side to advance.
During playback, use this key to search visually forward or backward.
Keep pressing the left or right side of the key until the section you wish to watch appears, then release it to resume normal speed playback.

⑤ **Play (►)**
Press to begin playback.

⑥ **Stop/Eject (■/⏏) key**
Press once to stop playback.
* Eject function will be performed only if your VCR is equipped with the remote control eject function.

⑦ **Pause/Still (❚❚/►|◄) key**
Temporarily interrupts recording or playback, producing a still picture during playback.

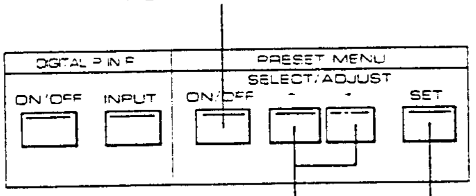


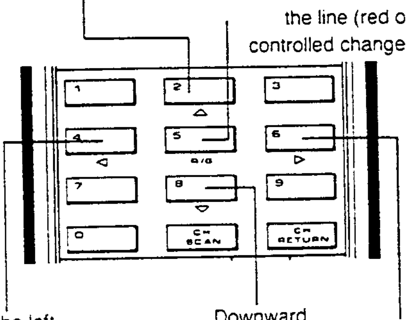
⑧ **REC (Record) keys**
Press both keys at the same time to start recording.

⑨ **VCR CHANNEL +/− key**
Press to select the channel of the TV tuner on the VCR.

# HOW TO ALIGN COLOR CONVERGENCE

This Projection Monitor uses three separate TV tubes — a red, a green, and a blue tube. The red, green and blue images are projected onto the screen where they converge to form a full color picture. If they do not converge correctly, then you will see colored borders around the images.
Your dealer should adjust the color convergence when your monitor is delivered. However, convergence may drift over time or if you move the monitor.
Follow the steps below if color convergence alignment is needed.


MENU ON/OFF button
DIGITAL P IN P
PRESET MENU
SELECT/ADJUST
ON/OFF
INPUT
ON/OFF
-
+
SET
MENU SELECT/ADJUST buttons
MENU SET button


Upward
Each time the R/B key is pressed the line (red or blue) to be controlled changes alternately
1
2
3
4
5
6
R/B
7
8
9
0
CH SCAN
CH RETURN
To the left
Downward
To the right

1. Turn on the power and select an active channel. Wait a moment for the picture to stabilize.
2. Press the MENU ON/OFF button on the control panel. The monitor screen displays the menu (CONVERGENCE, AV MEMORY, DPO BASE, INPUT LABEL, TV-CATV MODE, SYSTEM MODE, and TUNER PRESET).
   Make sure that "CONVERGENCE" is displayed in red. If not, press the MENU SELECT/ADJUST buttons until "CONVERGENCE" turns red.
3. Press the MENU SET button on the control panel. If color convergence is correct, there will be one vertical white line and one horizontal white line, as shown in figure 1.
4. If you see separate colored lines (Fig. 2 to 4), use the R/B, ◀, ▶, ▲, and ▼ keys on the remote control unit to make the red and blue lines disappear into the other lines.
   trolled (red or blue) alternates.
   Pressing the ◀ key moves the vertical line to the left, while pressing the ▶ key moves the vertical line to the right.
   Pressing the ▲ key moves the horizontal line upward, while pressing the ▼ key moves the horizontal line downward.
   In figure 2, for example, press the R/B key to control the red line, and then press the ◀ key until the red line converges.
   Press the R/B key again to control the blue line, and then press the ▼ key until the blue line converges.
   Convergence is correct when all three colors (red, green, and blue) converge, producing single white lines.
5. Press the MENU ON/OFF button when convergence is correct.

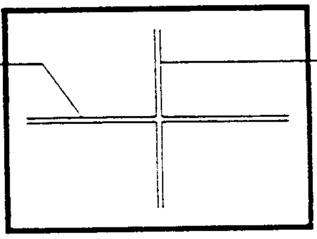

White
White

Fig. 1 Correctly aligned

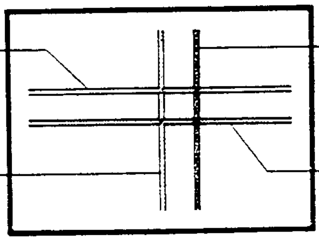

Blue
Red
Light blue
Yellow

Fig. 2 Horizontal and vertical misalignment

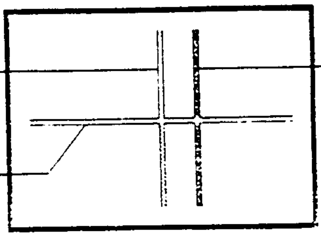

Light blue
Red
White

Fig. 4 Horizontal misalignment

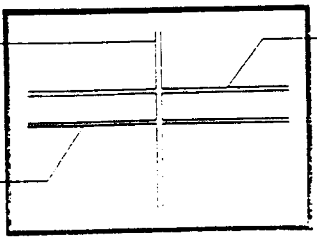

White
Blue
Yellow

Fig. 3 Vertical misalignment

## HOW TO ALIGN COLOR CONVERGENCE

### Color convergence alignment without using the remote control unit

Color convergence adjustment can be performed by either the operation keys of the remote control unit as described in operation 4 of the above procedures, or the MENU SELECT/ADJUST buttons and MENU SET button on the control panel as described below:

① **Press the MENU SET button to select the adjustment mode. The adjustment modes appear in the following order:**

- Convergence adjustment test pattern and arrow will appear on the screen accordingly.

Red-vertical adjustment → Red-horizontal adjustment
↓
Blue-horizontal adjustment ← Blue-vertical adjustment
(*) → Red-vertical adjustment

* Alignment proof mode: selected image only appeares.

② **Use the SELECT/ADJUST buttons as follows:**

During Red or Blue Vertical adjustment

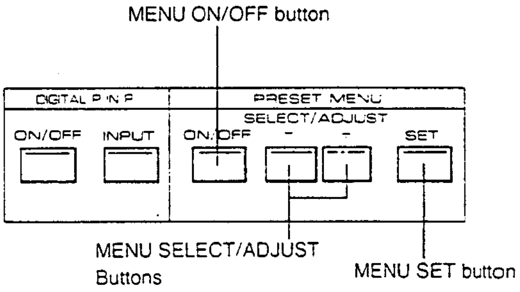
Press the + button to move the horizontal line upwards.

Press the – button to move the horizontal line downwards.

During Red or Blue Horizontal adjustment

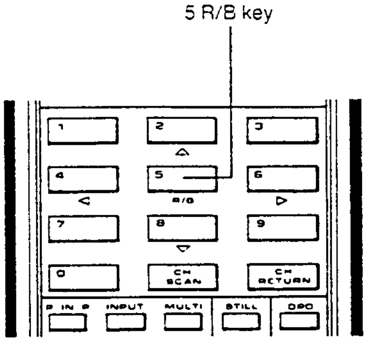
Press the + button to move the vertical line to the right.

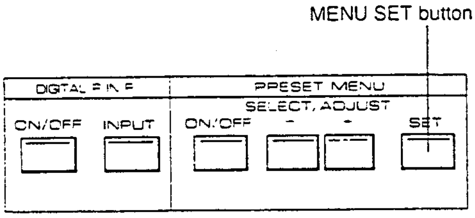
Press the – button to move the vertical line to the left.


MENU ON/OFF button
DIGITAL P IN P
PRESET MENU
SELECT/ADJUST
ON/OFF
INPUT
ON/OFF
–
+
SET
MENU SELECT/ADJUST Buttons
MENU SET button

## HOW TO ALIGN COLOR CONVERGENCE

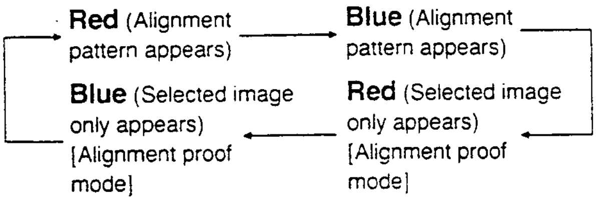
### Notes for the convergence alignment adjustment


5 R/B key
1
2
3
4
5
6
7
8
9
0
R/B
CH SCAN
CH RETURN
P IN P
INPUT
MULTI
STILL
OSD


MENU SET button
DIGITAL P IN P
ON/OFF
INPUT
PRESET MENU
SELECT, ADJUST
ON/OFF
–
+
SET

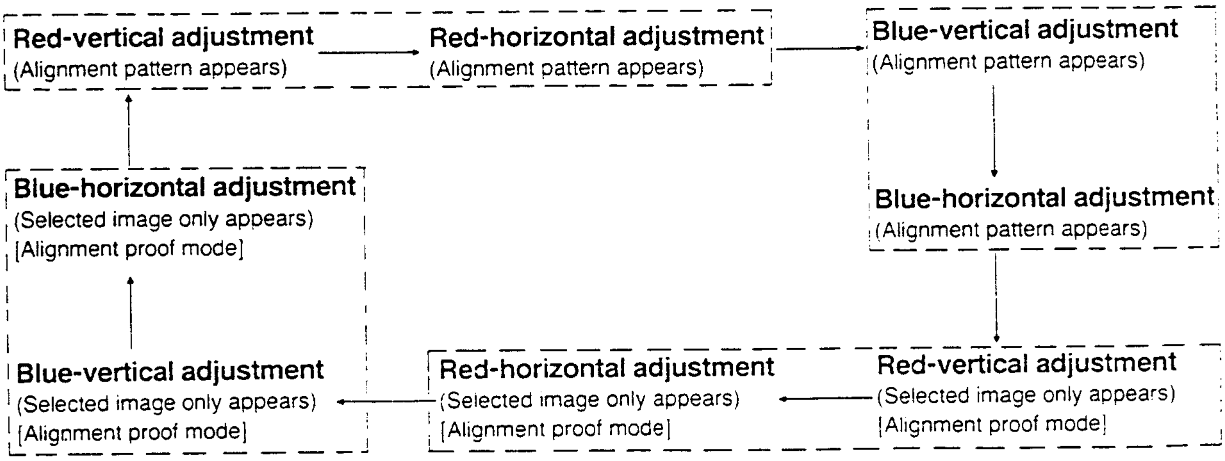
By repeatedly pressing the 5 R/B key or the MENU SET button when the convergence alignment adjustment is engaged, a selected image can be displayed on the screen instead of the alignment cross pattern.
This is the alignment proof mode, which allows you to check the center of the images to ensure that colored borders are not seen after the adjustment.
In the alignment proof mode the alignment can also be adjusted by pressing the 2, 4, 6 and 8 keys or pressing the MENU SELECT/ADJUST button. However, it is difficult to adjust the alignment properly when only the images appears on the screen.
If you can still see colored borders around the images, press the 5 R/B key or the MENU SET button again until the proper convergence alignment pattern reappears, and adjust the alignment by following the operations described on the previous page.
After all convergence alignment adjustment is finished, press the MENU ON/OFF button to set the monitor to its normal mode.

Each time the 5 R/B key is pressed, the alignment adjustment mode will change as follows:


**Red** (Alignment pattern appears)
**Blue** (Alignment pattern appears)
**Red** (Selected image only appears) [Alignment proof mode]
**Blue** (Selected image only appears) [Alignment proof mode]

Convergence alignment adjustment can be performed by pressing the 2, 4, 6 and 8 keys on the remote control after the alignment mode is selected.

### Each time the MENU SET button is pressed, the alignment adjustment will change as follows:


**Red-vertical adjustment** (Alignment pattern appears)
**Red-horizontal adjustment** (Alignment pattern appears)
**Blue-vertical adjustment** (Alignment pattern appears)
**Blue-horizontal adjustment** (Alignment pattern appears)
**Red-vertical adjustment** (Selected image only appears) [Alignment proof mode]
**Red-horizontal adjustment** (Selected image only appears) [Alignment proof mode]
**Blue-vertical adjustment** (Selected image only appears) [Alignment proof mode]
**Blue-horizontal adjustment** (Selected image only appears) [Alignment proof mode]

Convergence alignment adjustment can be performed by pressing the MENU SELECT/ADJUST button on the front panel after the alignment mode is selected.

# TV CHANNEL SELECTION

The Projection Monitor uses a frequency synthesizer tuning system to permit reception of up to 127 channels (including cable channels). This electronic tuning system gives you two ways of selecting channels.
You can use the remote control keys numbered "0" through "9" to directly input the channel number. Or you can use the two CHANNEL keys marked "+" and "−" on the remote control unit or the CHANNEL buttons marked "+" and "−" on the control panels to select one channel after another. In the latter case, you can remove or add channels to "TUNER PRESET" so that it contains only those channels that you usually watch.
usually watch.
The 127 possible channels include broadcast TV channels 2—13 (VHF), 14—69 (UHF), as well as cable (CATV) channels 1—13 (VHF), 14—22 (mid—band), 23—36 (super—band), 37—65 (hyper—band), and 94-99 (mid-band).

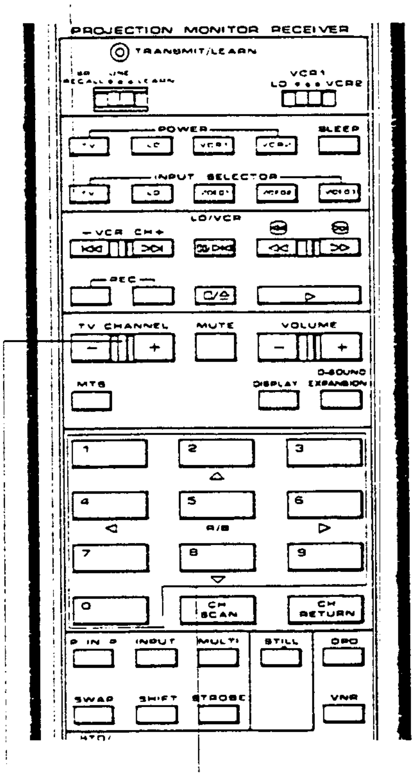
*NOTE:*

- *TUNER PRESET refers to channel access by pressing the CHANNEL keys marked "+" and "−". You can specify which channels are to be included in TUNER PRESET before using this function. Details follow.*

## BROADCAST TV CHANNEL SELECTION (When the VHF/UHF antenna is connected to the ANTENNA terminal on the rear panel.)

1. **Press the INPUT SELECTOR button so that "TV CHXX" appears on the monitor screen, or press the TV input selector key on the remote control unit.**
2. **Select channels directly by pressing the channel number on the remote control "CHANNEL CALL" 10-key pad.** For example, to receive channel "23", press 2 and then 3. For channels 2 through 9, first press 0 (zero), then the number; or just press the number and wait for about four seconds. (While waiting for you to input a second digit, the first digit blinks. If you do not input a second digit within 4 seconds, then the first digit is selected as the channel number.)
3. **Channel memory selection is also possible.** Using the CHANNEL keys marked "+" and "−" on the remote control unit or CHANNEL buttons marked "+" and "−" on the control panel you can scan through the channels which are in tuner preset. To add or delete channels from memory, see TUNER PRESET on page 32.

TV Input selector key

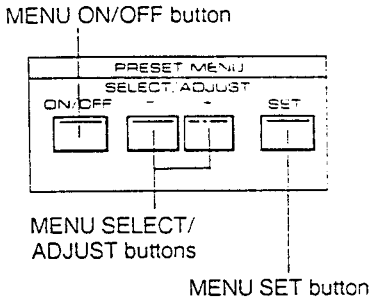


Channel call 10-key pad

TV CHANNEL key

## TV CHANNEL SELECTION

### PRESETTING YOUR CATV SYSTEM (When the cable box output is connected to the ANTENNA terminal on the rear panel.)

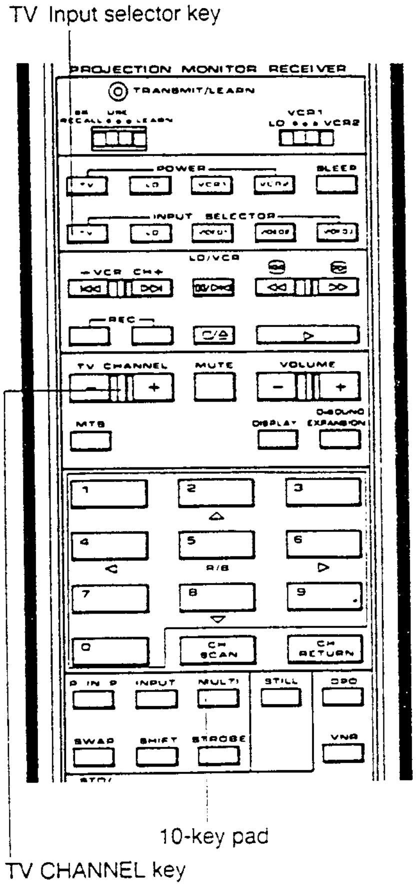

MENU ON/OFF button
PRESET MENU
SELECT/ADJUST
ON/OFF
SET
MENU SELECT/
ADJUST buttons
MENU SET button

1. **Press the INPUT SELECTOR button so that "TV CHXX" appears on the monitor screen, or press the TV input selector key on the remote control unit.**
2. **Turn on the menu with the MENU ON/OFF button and press the MENU SELECT/ADJUST buttons so that the TV-CATV MODE display turns red.**
3. **Press the MENU SET button. Each press the MENU button, "AIR", "STD" or "HRC" appears on the screen.**
4. **Select "STD (standard)" or "HRC" with the MENU SET button.** (Ask your dealer or cable service provider which is correct for your local CATV system.) Each press of the MENU SET button moves the selection from AIR to STD, to HRC, and then back to AIR again.
   The displayed mode ("STD" or "HRC") is now preset in the ANTENNA memory, so you can receive your local CATV broadcast when the TV is turned on.
5. **Press the MENU ON/OFF button to return to normal operation.**

### CABLE (CATV) CHANNEL SELECTION

It is necessary to preset your local CATV system in ANTENNA memory. To preset your CATV system, see "PRESETTING YOUR CATV SYSTEM".

1. **Press the INPUT SELECTOR button so that "TV CHXX" appears on the monitor screen, or press the TV input selector key on the remote control unit.**
2. **Select channels directly by pressing the channel number on the remote control 10-key pad.** For example, to receive channel "23", press the 2 and then 3. For channels 1 through 9, first press 0 (zero), then the number; or just press the number and wait for about four seconds. Note that channel numbers "00", and "66" through "93" are not assigned, so the selected channel will not change if you input these numbers.
   You can select VHF channels (1—13), mid-band channels (A1—A6, A—I), super-band channels (J—W), and hyper-band channels (AA—CCC). Refer to the standard cable channel assignment table shown on page 22. Your local cable service provider's channel assignments may differ from those shown in the table.
3. **Channel memory selection is also possible.** Using the CHANNEL keys marked "+" and "—" on the remote control unit or the CHANNEL buttons marked "+" and "—" on the control panel you can scan through the channels in channel memory. To add or delete channels from memory, see TUNER PRESET on page 32.


TV Input selector key
PROJECTION MONITOR RECEIVER
TRANSMIT/LEARN
POWER
SLEEP
INPUT SELECTOR
LD/VCR
VCR CH
REC
TV CHANNEL
MUTE
VOLUME
MTS
DISPLAY
EXPANSION
1
2
3
4
5
6
7
8
9
0
CH SCAN
CH RETURN
P IN P
INPUT
MULTI
STILL
SWAP
SHIFT
STROBE
VNR
10-key pad
TV CHANNEL key

TV CHANNEL SELECTION

## CABLE (CATV) CHANNEL ASSIGNMENT TABLE

Channel number assignment for the cable tuning mode begins with 01 through 65. omits the unassigned numbers 66 through 93. then proceeds from 94 through 99. The specific channel number assignments and the corresponding alphabetical designation are shown below in the channel table.

| | VHF L | MID | | VHF H | SUPER | | HYPER | | | UHF |
|---|---|---|---|---|---|---|---|---|---|---|
| TV | 2~6 | — | | 7~13 | — | | — | | | 14~69 |
| CATV | 2~6 (STD)<br>1~6 (HRC) | A-6 (94) | A (14) | 7~13 | J (23) | Q (30) | AA (37) | KK (47) | TT (56) | — |
| | | A-5 (95) | B (15) | | K (24) | R (31) | BB (38) | LL (48) | UU (57) | |
| | | A-4 (96) | C (16) | | L (25) | S (32) | CC (39) | MM (49) | VV (58) | |
| | | A-3 (97) | D (17) | | M (26) | T (33) | DD (40) | NN (50) | WW (59) | |
| | | A-2 (98) | E (18) | | N (27) | U (34) | EE (41) | OO (51) | XX (60) | |
| | | A-1 (99) | F (19) | | O (28) | V (35) | FF (42) | PP (52) | YY (61) | |
| | | | G (20) | | P (29) | W (36) | GG (43) | QQ (53) | ZZ (62) | |
| | | | H (21) | | | | HH (44) | RR (54) | AAA (63) | |
| | | | I (22) | | | | II (45) | SS (55) | BBB (64) | |
| | | | | | | | JJ (46) | | CCC (65) | |

For example: Channel number "14" corresponds to mid-band cable channel "A".

*NOTE:*

- *Cable (CATV) services can vary from area to area. The channel number assignments shown in the channel table may not correspond with the channel numbers used by your local cable company. Direct tuning to cable channels without the use of the cable company "converter" or "preselector" will depend on the specific channels in use by the cable company. Direct tuning to cable channels is limited to unencoded (unscrambled) channels only. Check your local cable company compatibility requirements.*

# MULTI-CHANNEL TV SOUND (MTS)

A multi-channel TV sound decoder is built into the Projection Monitor.
This MTS decoder permits stereo and SAP sound reception. (SAP is a "second audio program" often used for a second language.) The MTS decoder is only effective if the broadcast includes stereo or SAP signals.

## STEREO RECEPTION

If necessary, use the remote control MTS key to switch to the MAIN setting. The set will switch automatically between mono and stereo according to the signals received.

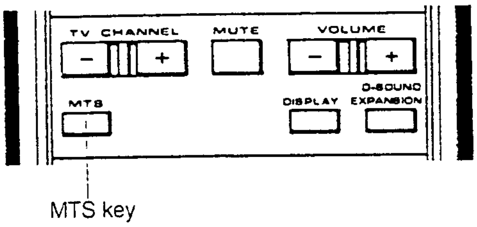
## MONO RECEPTION

You can force monophonic reproduction of all programs by using the MTS key to select MONO.
If you hear a lot of static while receiving a stereophonic TV program, set the MTS mode to MONO by pressing the MTS key.

## SAP (SECOND AUDIO PROGRAM) RECEPTION

TV stations have the option of broadcasting a second audio program (SAP) signal. This additional sound channel accompanies another mono signal or stereo signal. However, the SAP sound itself is in mono.

Use the MTS key to switch to the SAP or MAIN/SAP setting if you wish to hear the "second audio program" sound. (At the MAIN/SAP setting, the SAP sound will come from the right speaker while the left speaker produces the main sound signal.)
You will still hear stereo or mono sound when there is no SAP signal.



*NOTE:*
*The MTS display is shown on the screen when the channel is tuned in, or the DISPLAY key on the remote control unit is pressed.*

- *Broadcast stereo and SAP reception operate in accordance with the Broadcast Television Systems Committee (BTSC) standard only. Stereo audio transmission from CATV (Cable television) systems can vary from area to area and may not be compatible with the BTSC standard. Check with your local cable company for specific compatibility requirements.*

**Audio Reception Mode Display (selected by the MTS key)**

| Mode selected | Broadcasted mode | MONO | STEREO | MONO + SAP | STEREO + SAP |
|---|---|---|---|---|---|
| MAIN | Display | TU CH 00 | TU CH 00<br>STEREO | TU CH 00<br>MAIN | TU CH 00<br>STEREO (SAP) |
| | REPRODUCTION Mode | MONO | L and R | MONO (MAIN) | L and R |
| SAP | Display | TU CH 00 | TU CH 00<br>STEREO | TU CH 00<br>SAP | TU CH 00<br>SAP (STEREO) |
| | REPRODUCTION Mode | MONO | L and R | SAP | SAP |
| MAIN/SAP | Display | TU CH 00 | TU CH 00<br>STEREO | TU CH 00<br>MAIN/SAP | TU CH 00<br>MAIN/SAP (ST) |
| | REPRODUCTION Mode | MONO | L and R | L: MONO (MAIN)<br>R: SAP | L: MONO (MAIN)<br>R: SAP |
| MONO | Display | TU CH 00<br>MONO | TU CH 00<br>MONO | TU CH 00<br>MONO | TU CH 00<br>MONO |
| | REPRODUCTION Mode | MONO | MONO | MONO (MAIN) | MONO (MAIN) |

# HOW TO RELABEL INPUT DISPLAYS

The input label function can be used to replace the input displays; such as LD, VIDEO 1, VIDEO 2 or VIDEO 3; with the model numbers or model names of the components that are connected to the monitor. For example, you can display 'LD-S2' on the screen when selecting the LD input source.
The input label can be up to 8 characters long the 43 characters, including _ (space), listed below.

1. Turn on the monitor and select the input (LD or VIDEO) that you wish to replace with the model number of the unit connected to the monitor.
   Example: Replacing the LD display with model number 'LD-S2'.
2. Press the MENU ON/OFF button, and then press the MENU SELECT/ADJUST buttons until the INPUT LABEL display turns red.
3. Press the MENU SET button. 'LD' will appear in the right-hand corner of the screen.
4. Press the MENU SELECT/ADJUST buttons to select the desired character.
   * Press the + or − button repeatedly until the desired character appears.
5. Press the MENU SET button to set the selected character.
6. If you wish to select additional characters, repeat steps 4 and 5.
7. Press the MENU ON/OFF button once when you finish replacing the input labels.

Now you can display the model number by pressing the remote control INPUT SELECTOR key or the control panel INPUT SELECTOR button.

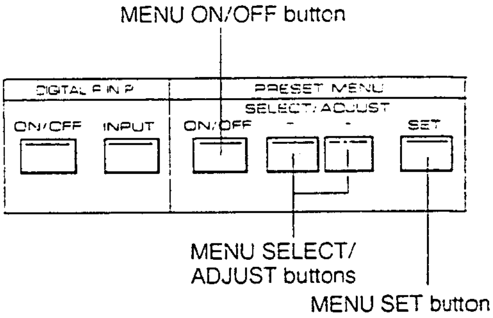
*NOTE:*

- *The following 43 characters, including _ (Space), can be selected.*

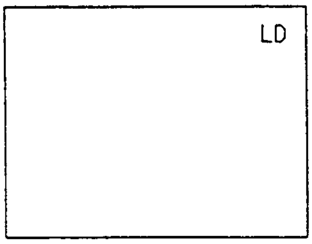
ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789:<>-..

*Space*

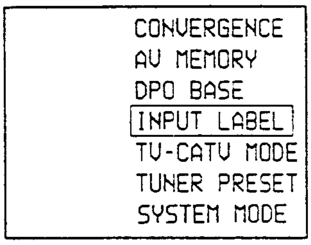
- *Make sure to press the MENU SET button after selecting the character.*


MENU ON/OFF button
DIGITAL F IN P
PRESET MENU
SELECT/ADJUST
ON/OFF
INPUT
ON/OFF
−
+
SET
MENU SELECT/
ADJUST buttons
MENU SET button

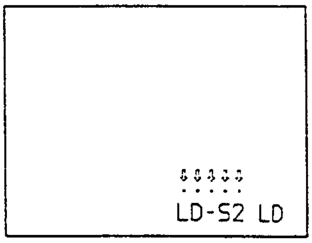
1



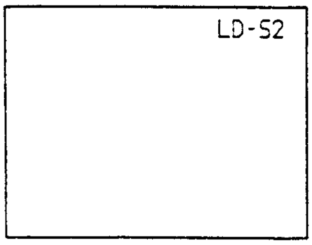
2


CONVERGENCE
AV MEMORY
DPO BASE
INPUT LABEL
TV-CATV MODE
TUNER PRESET
SYSTEM MODE

3 4 5 6



7

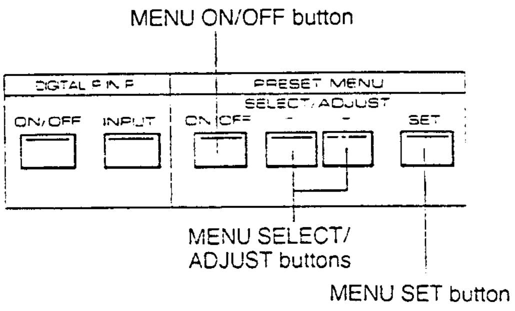


# TUNER PRESET

You can customize this special tuning system so that it will select only your personal choice of channels. When the Projection Monitor leaves the factory, all possible channels are in TUNER PRESET.
Using the menu function you can add or delete channels to or from TUNER PRESET to suit your tastes.
TUNER PRESET can be set to match your personal preferences among the channels available in your area. Please refer to your local TV or cable program guide. Follow the procedures below to customize TUNER PRESET to your requirements.

### Removing channels from TUNER PRESET

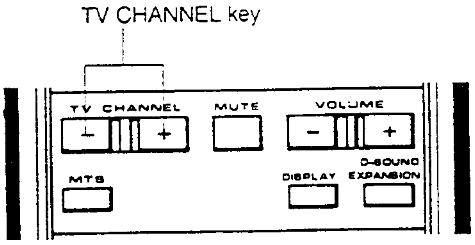
1. Turn on the monitor and set the input selector to TV mode.
2. Turn on the MENU ON/OFF button, and press the MENU SELECT/ADJUST buttons until the TUNER PRESET display turns red.
3. Press the MENU SET button. The channel numbers appear on the screen.
4. Press the MENU SELECT/ADJUST buttons until the channel number to be deleted blinks (the preset channel numbers are displayed in green).
5. Press the MENU SET button to delete the currently selected channel from TUNER PRESET. The blinking number turns red. The red numbers show the deleted channel numbers.
6. Repeat steps 4 and 5 to delete additional undesired channels.
7. Press the MENU ON/OFF button after presetting is completed.



### Adding channels to TUNER PRESET

1. Turn on the monitor and set the input selector to TV mode.
2. Turn on the MENU ON/OFF button, and press the MENU SELECT/ADJUST buttons until the TUNER PRESET display turns red.
3. Press the MENU SET button. The channel numbers appear on the screen.
4. Press the MENU SELECT/ADJUST buttons until the channel number to be added blinks. (The deleted channel numbers are displayed in red.)
5. Press the MENU SET button to add the currently selected channel to TUNER PRESET. The blinking number turns green. The green numbers show the added channel numbers.
6. Repeat steps 4 and 5 to add additional desired channels.
7. Press the MENU ON/OFF button after presetting is completed.

Now you can recall the preset channels by pressing the remote control CHANNEL "+" and "−" keys or the control panel CHANNEL "+" and "−" buttons.



### Other memory features

The Projection Monitor also remembers many other settings related to day-to-day operation. So when you turn the monitor on, it comes up with your previous channel and volume settings. It also remembers your previous picture quality settings.

# USING THE STATION LABEL FUNCTION

The station label function can be used to label each station with a call sign, network name, etc. For example, 'ABCD' can be displayed on the screen when that TV station is selected. The station label can be up to 4 characters long using the 43 characters, including _ (space) listed below.

1. Turn on the monitor and set the input selector to TV mode.
2. Press the MENU ON/OFF button, to display the menu. Then press the MENU SELECT/ADJUST buttons until the INPUT LABEL display turns red.
3. Press the MENU set button. The TV channel display appears.
4. Press the MENU SELECT/ADJUST button repeatedly until the desired TV channel is displayed.
5. When the desired channel is displayed, press the MENU SET button. The first character in the display turns red.
6. Press the MENU SELECT/ADJUST buttons repeatedly to select the desired character (the first character of your station label).
   Press the + or – button repeatedly until the desired character appears.
7. When the selected character is displayed, press the MENU SET button. The second character in the display turns red.
8. Repeat steps 4 and 5 to input each of the remaining three characters.
9. To input station labels for other channels, repeat steps 3—6.
10. Press the MENU ON/OFF button when you finish inputting all of the desired station labels.

*NOTE:*

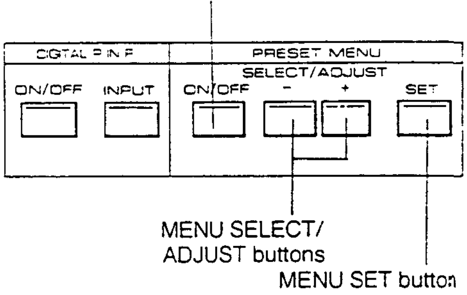
- *The following 43 characters, including _ (Space), can be selected.*

ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789:<>-.._

*Space*

- *Make sure to press the MENU SET button after selecting the character.*

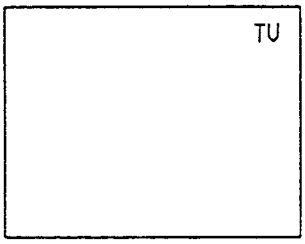
MENU ON/OFF button


DIGITAL P IN P
ON/OFF
INPUT
PRESET MENU
SELECT/ADJUST
ON/OFF
–
+
SET

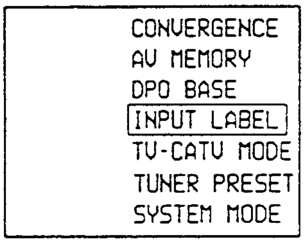
MENU SELECT/ADJUST buttons

MENU SET button

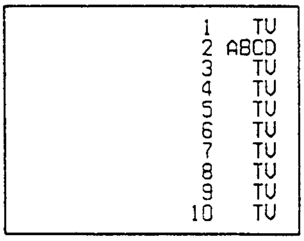
1



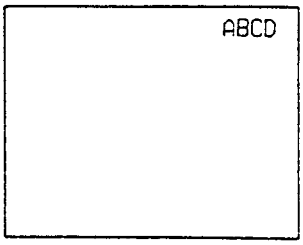
2


CONVERGENCE
AV MEMORY
DPO BASE
INPUT LABEL
TV-CATV MODE
TUNER PRESET
SYSTEM MODE

3 ~ 9


1 TV
2 ABCD
3 TV
4 TV
5 TV
6 TV
7 TV
8 TV
9 TV
10 TV

10



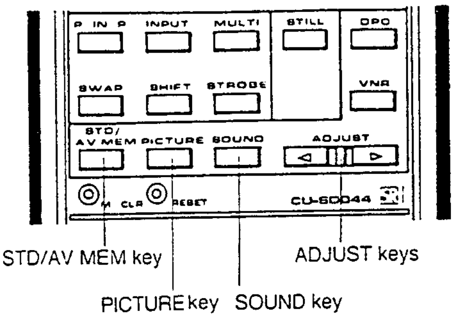
# PICTURE AND SOUND ADJUSTMENT

The remote control unit has a PICTURE key and a SOUND key. These keys allow you to adjust color, tint, contrast, brightness, sharpness, bass, treble, and balance.

1. Press the PICTURE key or SOUND key until the item to be adjusted turns red.
2. Press the ADJUST ▶ key to raise the value of the selected item. Press the ◀ key to lower it.

Set each item to any value you like; the current value is shown on the screen.
Picture and sound adjustment mode will be cancelled approx. 4 seconds after the ADJUST ▶ or ◀ key is released.

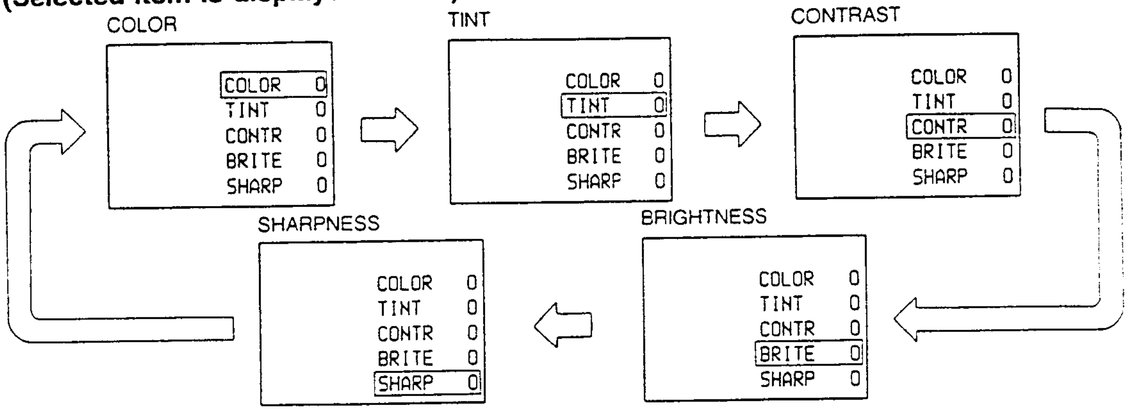
*NOTE:*
- *The Projection Monitor has been adjusted before shipping. Please make additional adjustments to suit your personal taste.*
- *These picture and sound quality settings can be stored in the AV MEMORY preset memory. See AV MEMORY on page 35.*
- *To return to the standard settings initially set at the factory, simply press the STD/AV MEM key so that the screen shows 'STANDARD.*
- *The COLOR, Contrast (CONTR) and Brightness (BRITE) adjustments cannot be selected while the DPO switch is on. If you wish to adjust them, turn the DPO off.*


P IN P
INPUT
MULTI
STILL
DPO
SWAP
SHIFT
STROBE
VNR
STD/ AV MEM
PICTURE
SOUND
ADJUST
M
CLR
RESET
CU-SD044
STD/AV MEM key
ADJUST keys
PICTURE key
SOUND key

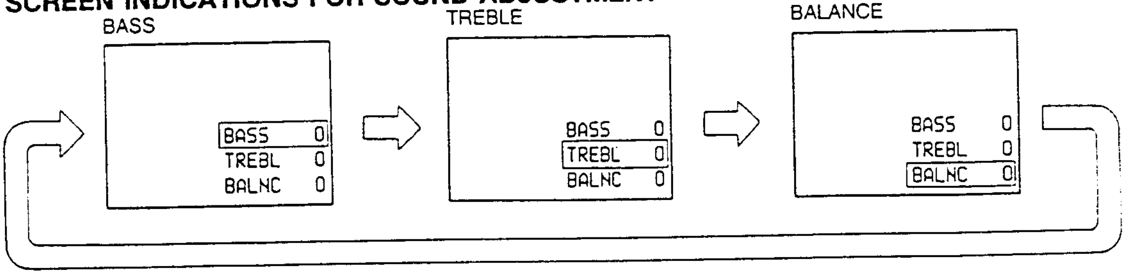
### Temporary AV Memory recall

When the display disappears from the screen, the existing AV settings will be stored in the temporary memory mode. In this mode, the monitor's temporary AV memory settings will be restored when the power is turned on.

## SCREEN INDICATIONS FOR PICTURE AND SOUND ADJUSTMENT (Selected item is displayed in red.)


COLOR
TINT
CONTRAST
SHARPNESS
BRIGHTNESS
COLOR 0
TINT 0
CONTR 0
BRITE 0
SHARP 0

## SCREEN INDICATIONS FOR SOUND ADJUSTMENT


BASS
TREBLE
BALANCE
BASS 0
TREBL 0
BALNC 0

*NOTE:*
- *If the color seems abnormal but cannot be fixed by color or tint adjustment, you may need to align the color convergence (see page 24).*
- *Bass and treble tone control adjustment range will be shown as a value between −32 and +31, and balance adjustment range wil be shown as a value between L32 and R31.*
- *During the DPO adjustment and AV memory operation, 'DPO', 'STD', 'AV1' or 'AV2' will be shown on the left side of the screen. When the tone control or picture quality control are adjusted, these displays will disappear from the screen except for the 'DPO' display.*

# AV MEMORY

After making adjustments, you can store your picture and tone quality settings in the two AV MEMORY presets. Follow the procedure below.

## Storing a Setting

1. Watch a TV show, video tape, or video disc.
2. Adjust the picture and tone using the PICTURE key, SOUND key and ADJUST key.
3. Press the MENU ON/OFF button to display the MENU, and press the MENU SELECT/ADJUST buttons until the AV MEMORY display turns red.
4. Press the MENU SET button.
5. Press the MENU SELECT/ADJUST button to select the AV memory (AV MEMORY 1 or AV MEMORY 2) in which the setting is to be stored. The unlocked display ( 🔓 ) will appear on the screen next to the selected AV MEMORY.
6. Press the MENU SET button to store the settings in AV memory. Upon completion of memory storage, the locked display ( 🔒 ) appears on the screen.
7. Press the MENU ON/OFF button to return to normal operation.

## Recalling a Setting

Press the STD/AV MEM key on the remote control unit. Each press of the STD/AV MEM key moves the selection from STANDARD to AV MEMORY 1, to AV MEMORY 2, display off and then back to STANDARD again.
(Press the key while the previous legend is still on the screen, otherwise, it will return to the STANDARD setting.)

## Returning to the Standard Setting

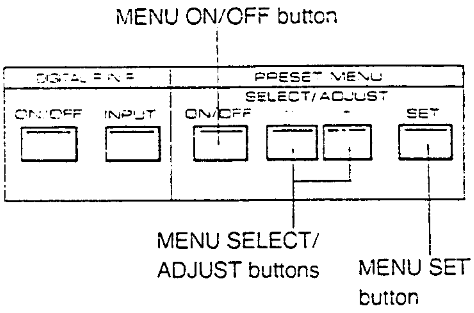
Press the STD/AV MEM key so that the screen shows STANDARD.

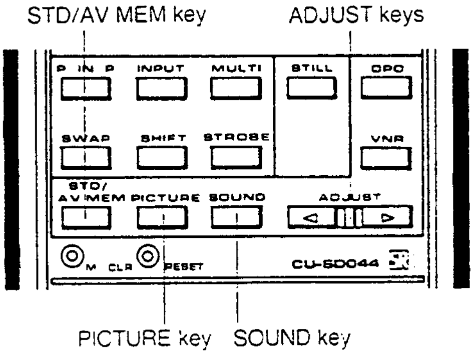
## Recalling a setting with the STD/AV MEM key on the control panel

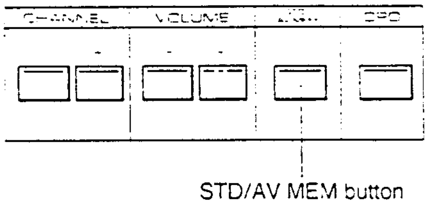
Press the STD/AV MEM button repeatedly to recall a setting, as described above for the remote control operation keys.

***NOTE:***

- *Adjustments mode to the AV memory, bass and treble tone, etc. will only affect the output from the AUDIO OUTPUT (VARIABLE) jacks.*
  *All other signals output from the Projection monitor will be unaffected.*
  *Only the original output signal is sent through the monitor output jacks.*


MENU ON/OFF button
PRESET MENU
SELECT/ADJUST
ON/OFF
INPUT
ON/OFF
SET
MENU SELECT/ ADJUST buttons
MENU SET button


STD/AV MEM key
ADJUST keys
P IN P
INPUT
MULTI
STILL
OPO
SWAP
SHIFT
STROBE
VNR
STD/ AV MEM
PICTURE
SOUND
ADJUST
M
CLR
RESET
CU-SD044
PICTURE key
SOUND key


CHANNEL
VOLUME
STD/AV MEM button

## AV Memory assignment

AV memory can be assigned to a selected input source: TV, LD or VIDEO. For example, the AV memory settings for TV can be stored in the STANDARD mode, LD settings in AV MEMORY 1 and VIDEO settings in AV MEMORY 2.
Press the input selector key repeatedly to select the desired input source, then press the STD/AV MEM key repeatedly to recall the desired settings.

# DPO ADJUSTMENT

When the DPO (Dynamic Picture Optimizer) switch is on, the monitor automatically adjusts the contrast, brightness and color to match room lighting conditions. This is done according to factory preset specifications which ordinarily do not need to be changed. However, if the DPO is giving you too bright or too dim a picture, you can change its response by following these directions.

DPO adjustment is necessary under the following conditions.

| Room conditions | Monitor screen condition | Adjustment |
|---|---|---|
| Dim light | Too much brighter than room lighting | DPO DARK Adjustment |
| Bright light | Dark monitor screen (Picture cannot be seen clearly) | DPO LIGHT Adjustment |

1. Under dim or bright room lighting conditions, watch a TV show, video tape, or video disc.
2. Press the MENU ON/OFF button to display the MENU, and press the MENU SELECT/ADJUST buttons until the DPO BASE display turns red.
3. Press the MENU SET button. "DPO LIGHT" and "DPO DARK" appear on the screen.
4. Press the MENU SELECT/ADJUST buttons to select the adjustment as follows:
   Bright room – select DPO LIGHT
   Dim room – select DPO DARK
5. Press the MENU SET button. "COLOR", "CONTR (Contrast)" and "BRITE (Bright)" appear on the screen.
6. Press the MENU SET button to select the adjustment items; "COLOR", "CONTR" or "BRITE".
   Press the MENU SELECT/ADJUST buttons to adjust the selected item.
7. Repeat step 6 to adjust the other two adjustment items.
8. Press the MENU ON/OFF button after all adjustments are completed.

### DPO system and AV MEMORY system

When the DPO system is turned off, the monitor picture will be set according to its original picture data (reference AV MEMORY data, memorized AV MEMORY 1 data or AV MEMORY 2 data).

When the DPO system is turned on, the monitor picture will be set according to a combination of the original AV MEMORY data (reference AV MEMORY data, AV MEMORY 1 or AV MEMORY 2 data) and the DPO adjustment data.

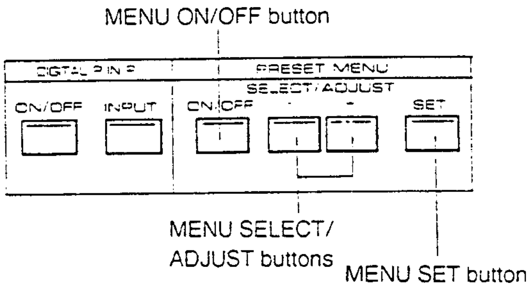
### Attention

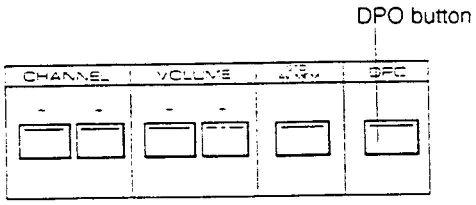
The following picture adjustments should not be performed when the DPO system is engaged.

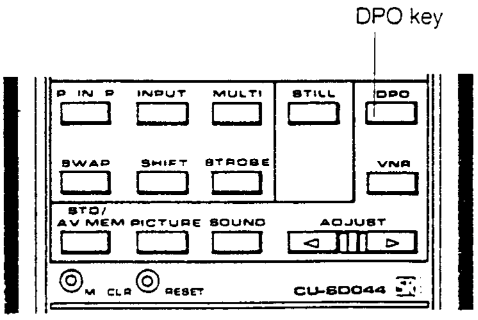
They are automatically adjusted to the proper level by the DPO microcomputer according to lighting conditions when the system is turned on.

If you wish to adjust these items, turn the DPO system off before making adjustments.

- COLOR
- CONTRAST (CONTR)
- BRIGHTNESS (BRITE)


MENU ON/OFF button
DIGITAL P IN P
PRESET MENU
SELECT/ADJUST
ON/OFF
INPUT
ON/OFF
SET
MENU SELECT/
ADJUST buttons
MENU SET button


DPO button
CHANNEL
VOLUME
DPO


DPO key
P IN P
INPUT
MULTI
STILL
DPO
SWAP
SHIFT
STROBE
VNR
STD/
AV MEM
PICTURE
SOUND
ADJUST
M
CLR
RESET
CU-SD044

# HOW TO TURN THE SYSTEM MODE FUNCTION ON AND OFF

### On the system mode function

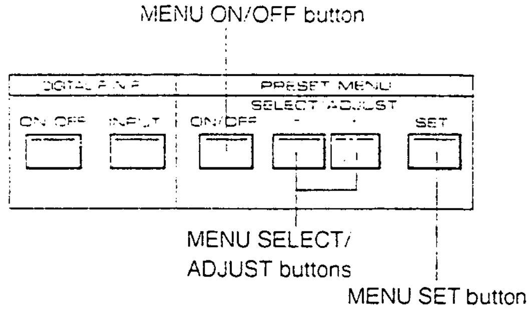
The system mode function is used to internally separate the TV tuner section from the Monitor section of the Projection Monitor. This allows the TV signal to be sent through an AV amplifier before being displayed on screen.

The system mode function can be used to connect all your audio and video components, including the Projection Monitor, to your AV amplifier, and control the operations of all of them with the AV amplifier's remote control unit.

**Attention:**

- The input selector is automatically set to LD or TV mode when the system mode is engaged.
  When the system mode is on, the input selector of the Projection Monitor will not change when the input select button is pressed.
- When using system mode, be sure to turn this function off. The input selector will resume normal operation when system mode is turned off. Follow the instructions below to turn the system mode function on and off.
- If the built-in speakers of the Projection Monitor are being used as the center channel speaker for the surround sound system, the Projection Monitor volume must be set to its maximum position (63).
- When resetting the Projection Monitor after system mode is turned off, set the volume control to its minimum position first.

1. Turn on the Projection Monitor.
2. Press the MENU ON/OFF button, and press the MENU SELECT/ADJUST buttons until the SYSTEM MODE display turns red.
3. Press the MENU SET button to turn the SYSTEM MODE on.
   To turn the system mode off, press the MENU SET button again. SYSTEM OFF appears on the screen for 4 seconds.
4. Press the MENU ON/OFF button to return to normal operation.


MENU ON/OFF button
DIGITAL P IN P
PRESET MENU
SELECT ADJUST
ON OFF
INPUT
ON/OFF
-
+
SET
MENU SELECT/ ADJUST buttons
MENU SET button

CONVERGENCE
AV MEMORY
DPO BASE
INPUT LABEL
TV-CATV MODE
TUNER PRESET
SYSTEM MODE

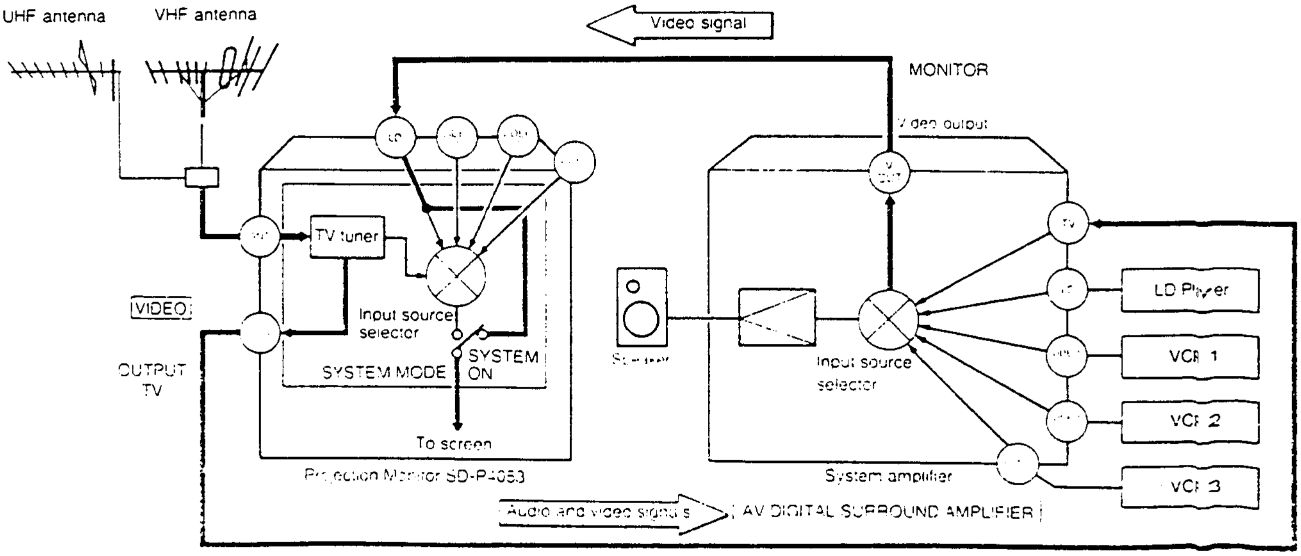
### Notes on system mode

When system mode is engaged, the only pictures that can be displayed as a sub-picture are television broadcast pictures. When system mode is selected, the menu display appears on the screen. To make the menu display disappear, press the MENU ON/OFF button.

*NOTE:*

- *Check the power of the Projection Monitor before and after using it. Be sure you turn the power of the Projection Monitor on and off with the remote control unit of the Projection Monitor.*
- *Perform all volume adjustment with the connected AV amplifier's VOLUME control.*

## SIGNAL FLOW DIAGRAM


UHF antenna
VHF antenna
Video signal
MONITOR
Video output
TV tuner
Input source selector
SYSTEM MODE
SYSTEM ON
To screen
VIDEO
OUTPUT TV
Speaker
Input source selector
LD Player
VCR 1
VCR 2
VCR 3
Projection Monitor SD-P4053
System amplifier
Audio and video signals
AV DIGITAL SURROUND AMPLIFIER

Use commercially available VIDEO AUDIO cords for connections

# TROUBLESHOOTING

Please check the following chart and try the suggested solutions before consulting a PIONEER authorized service center. Often you can fix the problem by making a simple adjustment on the Projection Monitor. Faulty connections may be to blame, or it may be another piece of equipment that is causing the trouble.

| SYMPTOM | POSSIBLE CAUSE AND SUGGESTED SOLUTION |
|---|---|
| NO PICTURE | AC power cord is not plugged into the wall socket.<br>**Plug in the AC power cord.**<br>Power switch is off.<br>**Turn on the power switch on the Projection Monitor, or turn on the TV POWER key on the remote control unit.**<br>Selected video signal source is not connected to input jacks, or source component (VCR, etc.) is not turned on or is not providing a signal.<br>**Check connections and source unit operation.** |
| COLOR IS WASHED OUT | Color value is too low.<br>**Use PICTURE/SOUND key and ADJUST keys to increase COLOR value.**<br>Brightness value is too high.<br>**Use PICTURE/SOUND key and ADJUST keys to reduce BRIGHT value.** |
| COLOR TINT IS WRONG | Tint value is too high or low.<br>**Use PICTURE/SOUND key and ADJUST keys to adjust TINT value.** |
| STATIC IN TV PICTURE | Interference from motor vehicles, neon signs, etc.<br>**Try changing the height or direction of the TV antenna. Move the antenna away from the source of interference.** |
| GHOSTING ON SCREEN | This "multipath" distortion is caused when the TV signal is received along two paths directly after being reflected from tall buildings, mountains or other obstacles. Strong winds may have changed the direction of the TV antenna.<br>**Try changing the height or direction of the antenna. An antenna with better directional characteristics may be required.** |
| COLORED STRIPES ON SCREEN | Interference from other radio or TV signals.<br>**Try changing the height or direction of the antenna. Try changing to a coaxial antenna cable. Coaxial cable is shielded to minimize pickup of interfering signals.** |
| COLORED EDGES ON IMAGES | Color convergence needs adjustment.<br>**Tune in a channel, select CONVERGENCE from among the menu items and adjust using the convergence controls on the remote control unit (see page 24 for details).** |
| UNCLEAR PICTURE | Connections are loose or cables are damaged.<br>**Check connections and try using new cables.**<br>Antenna may be damaged.<br>**Check antenna.** |
| POOR PICTURE OR COLOR QUALITY | Interference from a nearby speaker or other source of magnetism.<br>**Move source of interference away from the monitor.** |
| NO SOUND | Rear panel SPEAKER SELECTOR is set to EXT, but external speakers are not connected.<br>**Set selector to INT.** |
| NO ON-SCREEN CHANNEL OR OTHER DISPLAY; SLEEP TIMER DOES NOT OPERATE | Strong light striking the remote control sensor may cause the internal microcomputer to malfunction.<br>**Change the position of the Projection Monitor or change the lighting so that the sensor is not exposed to strong light sources.** |

- *Abnormal functioning of this monitor may be caused by lightning, static electricity, or other external interference. To restore normal operation, turn the power off and then on again, or unplug the AC power cord and then plug it in again.*
- With some VCRs, when the VCR is not in play mode, the screen sometimes fluctuates. This is not a malfunction.

# CARE OF YOUR PROJECTION MONITOR

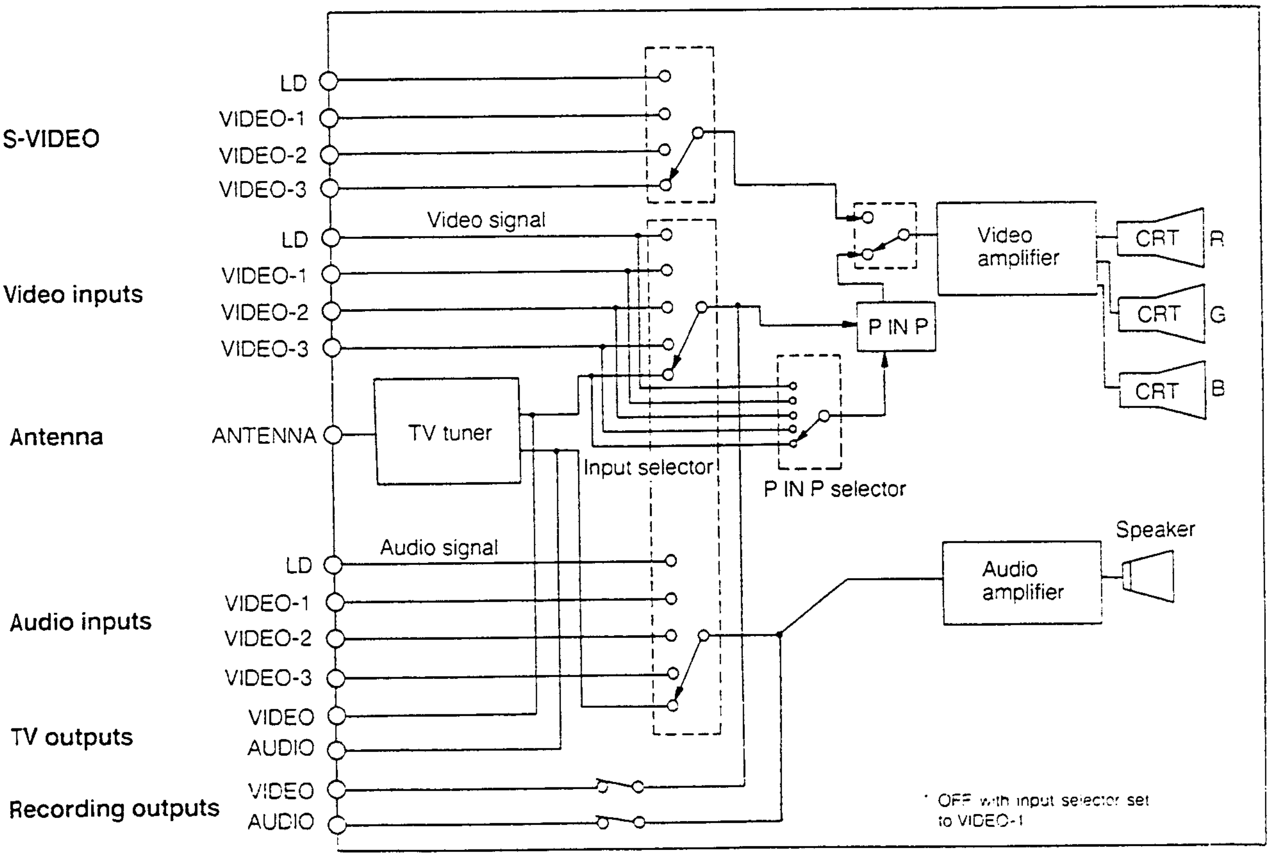
## DO NOT:

- Do not use strong cleansers, solvents, polishes, or chemically treated cloths to clean the screen or cabinet.
- Do not touch or scratch the screen.
- Do not fasten or place rubber or vinyl items on the monitor.
- Do not use tape on the monitor.
- Do not put any object on the monitor.

## DO:

- Use a soft cloth to dust the screen and cabinet.
- If necessary, unplug the monitor and wipe with a soft cloth moistened with warm water (and mild soap if dirt has built up). Dry with a soft, dry cloth.
- Treat the screen with care to avoid scratches or damage.
- Ask your local dealer to clean the interior of the monitor if maximum picture brightness decreases. This may be caused by dust build-up inside.

# BLOCK DIAGRAM


S-VIDEO
LD
VIDEO-1
VIDEO-2
VIDEO-3
Video inputs
Video signal
LD
VIDEO-1
VIDEO-2
VIDEO-3
Antenna
ANTENNA
TV tuner
Input selector
P IN P
P IN P selector
Video amplifier
CRT
R
CRT
G
CRT
B
Audio inputs
Audio signal
LD
VIDEO-1
VIDEO-2
VIDEO-3
Audio amplifier
Speaker
TV outputs
VIDEO
AUDIO
Recording outputs
VIDEO
AUDIO
* OFF with input selector set to VIDEO-1

# SPECIFICATIONS

# SD-P4053

## DISPLAY SECTION

Reception system........ American TV standard NTSC system
Screen size .......................................................... 40"
CRT ............................................. 7" High focus CRT ×3
Brightness (White peak) .......................... 600 Foot-Lambert
[100% Window signal input contrast, bright Max.]
Actual viewing angle .......................... Horizontal H = 140°
Vertical V = 50°
Horizontal resolution ............................................ 730 lines
[Input digital test pattern (900 lines resolution)]
Input terminals ................................. 4 video input systems.
S-VIDEO input jacks (Y/C separate INPUT) ×4
4 audio input systems
Output terminals....................REC OUTPUT (To VIDEO-1):
Video output, audio output (For recording) ×1
TV OUTPUT (Ex. to Audio/Video digital surround amplifier) ×1
System remote control terminal....................................OUT
Input signal............................Video signal: 1.0 Vp-p ±0.2 V
(75 ohms load)
Audio signal: 500 mV rms
Input impedance......................Video input: 75 ohms ±10%
Audio input: 50 kohms or more
Input signal polarity..........................Synchronized negative
Output terminal signal ratings:
Output terminals (except VIDEO-1) .................................
Video signal: 1 Vp-p (75 ohms load)
Audio signal: 500 mV rms (100% modulation)
Output impedance..............Video output: 75 ohms ±10%
Audio output: Less than 1 kohms
Audio output terminal..................Audio signal: 630 mV rms
(VARIABLE) (100% modulation Volume MAX.)

## TUNER SECTION

Circuit type ..................................... Video signal detection:
PLL full synchronous detection
PLL Digital Synthesizer system
Audio multiplex: BTSC system
Reception channels ..........................................................
VHF: CH2~CH13, UHF: CH14~CH69
CATV (STANDARD, AIR or HRC switchable)
CATV A-6 CH~CCC (W+29) CH
Antenna terminals..............................................................
ANTENNA terminal, 75 ohms UNBAL.
F-type connector (VHF, UHF MIXED)

## AMPLIFIER SECTION

Effective output (both channels driven)
10 W+10 W (THD. 1% 50 Hz to 15.000 Hz, 8 ohms)
Tone control: BASS.......................+8 dB, −10 dB (100 Hz)
TREBLE..................+8 dB, −10 dB (10 kHz)
Built-in speaker system .....................................................
16 cm (6-1/2 in) full range ×2
External speaker impedance ............................8~16 ohms

## ELECTRICAL SECTION, MISCELLANEOUS

Power requirements .................................AC 120 V, 60 Hz
Power consumption ................................................. 240 W
External dimensions
1031 (W)×615 (D)×1188 (H) mm
40-9/16 (W)×24-3/16 (D)×46-3/4 (H) inch
Weight of main unit.............................69.0 kg (152 lb 5 oz)

## WIRELESS REMOTE CONTROL UNIT

Operation system: Programmable infrared remote control system
Power source: Two AM-3, "AA" IEC LR6 1.5 V alkaline dry cell batteries
Attachments: Two batteries and an overlay sheet
Dimensions: 73 (W) × 21 (H) × 214 (D) mm
2-7/8 (W) × 13/16 (H) × 8-7/16 (D) in.
Weight: 135 g (4.7 oz.) (without batteries)

## ACCESSORIES

Operating instructions .............................................. 1
Warranty card ........................................................ 1
Remote control unit .................................................. 1
AM-3, "AA" size (IEC LR6 1.5 V) alkaline dry cell batteries .................................................................. 2
Important Safeguards card ......................................... 1

***NOTE:***
*Specifications and design subject to possible modifications without notice due to improvements.*